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The International Situation in Paper

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THE problem of increasing sales of American-made paper abroad is that of marketing standardized products of superior quality and relatively high prices, in competition with foreign products whose quality is not always of an equal or near equal character.

No broad campaign for foreign business should be started by an American paper manufacturer until the necessary supporting domestic organization has been developed. Instances are known where firms have actively advertised in foreign countries, and when confronted with an export order, did not know how to execute it. Such methods are inexcusable and discredit the paper manufacturer at home and abroad. Export business is good business and worth sustained effort. America's business in paper in the foreign world can be steadily developed; and it means a valuable additional source of profits for the manufacturers whose products are suitable for foreign consumption.

Export paper business can be secured on clean and attractive terms; but to sell without proper preparation is only to sell trouble. Bungling methods, neglect of foreign customers, and numerous other export sins, accumulate "bad will" against the day when a serious effort is to be made. Such failures create a handicap for other Americans who are at work oversea. Paper manufacturers should not enter export fields until prepared to handle such trade properly. This does not mean that foreign trade is especially difficult, for, properly handled, it is usually very clean business.

While it is possible to imagine many different forms of organization to be employed in marketing American paper in foreign countries, the problem is very simple, for such products, whether American, European, or of other origin, are usually marketed through importers established in various foreign centers as exclusive distributors. The problem, therefore, of marketing paper abroad consists in establishing and maintaining satisfactory contacts with those importers.

A definite foreign sales policy must first be established. It may not be the same for varying conditions in different countries, but it should be definitely decided whether the paper manufacturer will quote F.O.B. mills; F.A.S. New York or other port; or C.I.F. destination; whether he will maintain branch offices, send his own salesmen, grant exclusive sales representation, or operate and introduce his products in open markets.

Manufacturers of paper should thoroughly investigate responsibilities and obligations involved in each case before selecting the policy they will pursue as most effective under such circumstances. To insure that lines are supported by constructive foreign salesmanship, paper manufacturers usually find the most practical method is exclusive sales agreements for each particular market; also arranging to have the distributor employ a sales engineer who has been duly trained in all American methods. There are other plans that may be followed, but each depends upon the careful selection of foreign distributors.

Growing Competition

While the United States has a practical monopoly on the world markets for bank note paper, this same condition does not apply to various other forms of paper. However, the appreciable increase in foreign sales of certain papers in the past five years, justifies an extra effort being put forth to retain this business and to cause a gradual increasing year by year. As the effects of sanitary education become more apparent in foreign corners, and such products as paper napkins and towels, greaseproof and water-

proof papers, toilet, tissue, crepe, and writing papers, cash register and adding machine rolls, and various other specialized papers become more generally used, the greater will become the competition from paper manufacturers of Europe. This is already noticeable in the decrease in American sales of uncoated book papers, newsprint, cigarette papers, paper bags, and envelopes. In fact, as rapidly as new paper products are introduced by the mills of Canada and the United States, the mills of Europe proceed to duplicate the product. On the other hand, the vast increase in imported newsprint paper by the United States should be regarded as a worth-while protection to American forests. It is far better to import pulps and pulp woods from Sweden, Finland, the Soviet Republic, and other countries, with their vast forest resources, than to exhaust our own.

Sixty per cent of Sweden's 41,000,000 hectares of land consists of forests; the Soviets own over two billion acres which they are rapidly developing; and those of Finland, Poland, and China, can furnish enormous quantities of wood pulp for world consumption without any great depreciation taking place under their reforestation plans.

American and Canadian paper manufacturers have a constantly growing competition in finished products, due to the shipments of paper and pulp mill machinery and equipment to foreign countries during the past five years by the United States, Germany and England. Japan, China, Australia, Argentine and Mexico have been steady purchasers of this class of machinery and many new mills have resulted. This applies with still greater force to the development now under way in the Soviet Republic and which promises to make that nation the greatest of all competitors.

Russia and the Orient

The Fuji Paper Mills of Japan have acquired a large lumber concession in the forest zone along the River Mutan in Kirin Province of Manchuria. They are constructing a light railway from the timber zone to Mutan on the Chinese Eastern Railway in order to ship this pulp lumber by rail to Vladivostock and thence by steamer to Shimizu, Japan. This concession will make it possible for the Fuji Mills to vastly increase their output. In addition, the Chinese are beginning to develop their timber resources in the Great Black Back Range, south of Mirror Lake, where they have surveyed 455,460 acres of forests suitable for paper manufacture; and the same applies to the Lou-Ya-Ling District where they have surveyed 460,000 acres of virgin forests. However, as only twenty of the 30,600 various paper plants in China use modern machinery, American business in specialized paper products is not threatened to any extent for several years to come. This will not continue as a permanent condition, and it behooves American and Canadian manufacturers to secure a strong foothold to meet the competition of the future. Two modern mills are now in operation in the Canton District, and the one at Tsinan is steadily increasing its output of wall and ceremonial papers. On the other hand, China is a steadily growing market for foreign style writing papers. The native product, suitable only for Chinese type of writing, is not a competitor, but those who have been educated abroad have taken home many modern ideas, resulting in this growing demand.

Prior to the World War, Russia consumed the bulk of Finland's paper output. During the war period, the mills of Finland, Sweden, Norway and Canada developed to a remarkable extent, and since the Armistice, the industry has gained a good foothold in Japan. To-day, the mills of the Soviet Republic, based upon and backed by the finest timber resources in the world, equipped with the most modern machinery obtainable, and fortified with a low labor cost, potentially threaten the life of the mills in Canada, United States, Finland, Poland, Germany, Sweden, Norway, and Great Britain, to a certain extent. At any rate, a new history is about to be written in this gigantic industry, and in its making, the Soviet Japanese and Chinese Mills are going to become very important world factors.

Selection of Foreign Representatives

Export paper business is just as vital to all other countries as it is to the United States and Canada. Consequently, a great deal of the success in developing and holding foreign trade depends upon the types of foreign representatives selected. The best way to select representatives abroad is to gather all possible information in the United States; then visit the foreign countries to investigate the matter, reaching an agreement on the spot. When the sales potentialities of paper justify, this should be done, but it should be done properly. It is not possible to rush into foreign countries, and in a short time acquire necessary information, make decisions, and hurry on. Each country has its own peculiarities. It is very difficult to draw safe conclusions from one with respect to another. Each foreign district is a separate problem, deserving careful and deliberate study.

A foreign trip gives most valuable opportunities for establishing friendly relationships and learning market conditions. When circumstances prevent executives from making such trips, it is wise to send substitutes, if qualified men are available. This method of selecting foreign representatives is most satisfactory and when circumstances justify it should be employed.

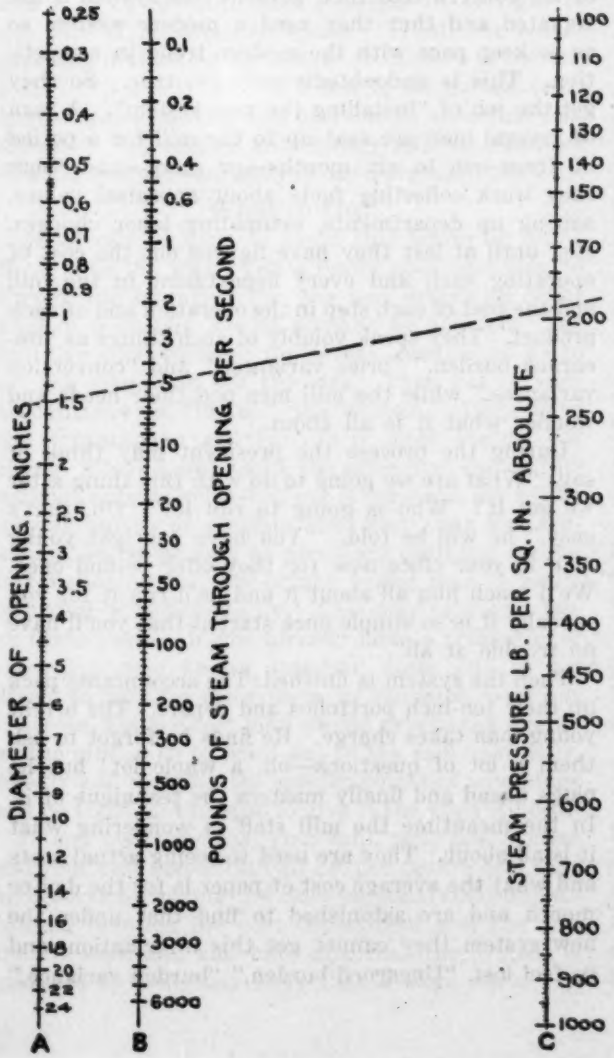
The idea of granting exclusive sales agreements is to stimulate paper representatives and distributors abroad to create business, toward constructive sales effort of a permanent and lasting character, thereby adding to profits for both the manufacturer and distributor. If business is not stimulated, such ar-

rangements are failures. A successful distributor must have an organization foreign in interest in selling American paper and paper products; he must be in a position to cover his entire territory. His sales department must be handled by qualified native agents who understand the class of products involved, the language and the country in which they operate.

It is very important to cover foreign territory adequately. It is a common mistake by American and Canadian firms to use foreign political boundaries as those for business. Because a firm has an office in Shanghai is no proof that it can adequately cover the Hong Kong or Peking areas. Often Calcutta dealers are not prepared to cover Burma or Bombay; concerns in Rio de Janeiro often have no connections in Sao Paulo; and one in Cape Town may have none in Pretoria.

There are great differences in foreign firms; each develops bents for certain trade; each has different business methods, special clientele, certain lines of products that command attention. If a firm specializes in newsprint, inferior results are certain in the sale of stationery, building paper, or any other paper specialty. This bent can be discerned by studying the lines it handles. Often foreign firms want an "outside line," but the interests of the American paper mill lie with foreign importers who will give constructive sales effort. It is a common failure by many natives to undertake more lines of diversified products than they can efficiently handle. A point which should not be over-looked is that agencies are often solicited in order that a paper manufacturer's efforts to secure business in a given foreign country may be throttled. This is often sponsored by foreign paper manufacturers who fear the supremacy of American and Canadian products.

The financial standing of foreign representatives is not the only indication of their fitness to become exclusive agents. Integrity is one of the most important essentials. Often a foreigner, residing in some country other than his own, without much financial background, is in a better position to create volume sales than native firms with large capital. Foreigners possess that vital aggressiveness usually called "native pull or family standing."



What Diameter? What Pressure? How Many Pounds of Steam?

THIS chart answers all of the above questions. It will be found very useful for making calculations regarding steam flow, steam pressure, and diameter of opening or diameter of short pipe for a given condition where there is at least 60 per cent pressure drop through the opening.

For example if you carry steam at a pressure of 195 lbs. per square inch absolute, and if you figure that it will take 5 lbs. of steam per second to handle a given task or to heat a given building, the question is "What must be the diameter of opening of short pipe to permit 5 lbs. of steam to pass into the machine or heating coils per second?"

A heating problem is a good one to use because it usually involves considerable pressure drop. Very often the pressure drop is effected through a reducing valve. Where a reducing valve is used, this chart comes in handy for determining the size of valve required. In other words, the opening through the reducing valve must be large enough to conduct 5 lbs. of steam from the boiler into the machine or heating coils per second.

The dotted line which I have drawn across the chart shows how easily these problems are solved. Simply run a straight line through 195 lbs. per square inch (Column C) and then through the 5 lbs. steam per second (Column B) and the answer is 1.5 inches, (Column A). This is, the diameter of opening, orifice, or short pipe, whatever you wish to call it, must be at least one and one-half inches. Isn't that easy enough?—W. F. Schaphorst, M. E.

Cost Accounting in the Paper Industry

Part XII—Outline of Cost Systems

By D. A. WILCOX

Queries and Answers

In order to encourage discussion on the subject of cost accounting in the paper industry, the author of this series of articles is prepared to answer to the best of his ability any queries on cost accounting that may be directed to him.

IN this article and those which follow we shall endeavor to outline different types of cost systems for various sorts of mills, starting with the simplest, a one-product mill, and proceeding through to the most complex multi-product specialty mill producing its own pulps and other materials and a variety of products. In doing this, we shall aim to proceed step by step so that the resulting system will not appear to be based merely upon opinion, and it is hoped that the reader may follow the line of reasoning up to our own conclusions. Actual examples will be cited to illustrate the different systems, but this shall not be adhered to when an imaginary case may be used to illustrate a point more clearly.

In order to cover the field in this thorough way so that the reader can find the system best fitted to his own particular needs, actual cost systems, job order costs and predetermined costs will be illustrated as impartially as possible and the advantages and disadvantages of each discussed. In order that there may be no misconception of our views, it may be set down here that we prefer and advise the use of the standard or predetermined system as the most direct, most truthful and most useful method of presenting cost data. Recognizing, however, that there may be circumstances (not due to the system, but to the attitude of the personnel) where this system is inexpedient, it is only fair to present the others. It is better that even an inferior system be adopted if it be thoroughly understood and used rather than a superior system which is not understood and therefore not used.

The Costs and the Budget

It is hoped that your organization will have both a good cost system and a good budget. They are complementary but not identical. The budget is designed primarily to foresee, to plan and to co-ordinate activities, being the best means for an immediate control. It deals at the outset with controllable items, touching on the fixed charges only as necessary to give the complete picture and it does not aim to secure costs of individual products. It takes things as they are and follows current conditions as closely as possible. The cost system may, however, be supremely unconcerned about current conditions, treating as it does of normal conditions only; it aims to produce relative costs of the various individual products and is much more detailed in its structure than a budget giving a much more complete picture. The budget gives the immediate picture necessary to a short range control, but the cost system gives the much longer perspective, which is also essential to good operations.

The New Cost System

Suppose it is decided to use a new cost system, say a predetermined system, what then? How shall it be formed and how shall it be operated? Here is what often happens:

Some professional firm by means of high-pressure salesmanship persuades the treasurer or president of the concern that their present cost system is antiquated and that they need a modern system so as to keep pace with the modern trend in competition. This is undoubtedly only too true. So they get the job of "installing the new system". A man or several men are sent up to the mill for a period of from one to six months—or more—and there they work collecting facts about appraisal values, setting up departments, estimating labor charges, etc., until at last they have figured out the cost of operating each and every department in the mill and the cost of each step in the operation and of each product. They speak volubly of such things as "unearned burden," "price variances," and "conversion variances," while the mill men nod their heads and wonder what it is all about.

During the process the president may think or say: "What are we going to do with this thing after we get it? Who is going to run it?" "Oh, that's easy," he will be told. "You have a bright young man in your office now (or they offer to find one). We'll teach him all about it and he'll run it for you —really it is so simple once started that you'll have no trouble at all".

Then the system is finished. The accountants pack up their ten-inch portfolios and depart. The bright young man takes charge. He finds he forgot to ask them a lot of questions—oh, a whole lot! but he plugs ahead and finally masters the technique of it. In the meantime the mill staff is wondering what it is all about. They are used to seeing actual costs and what the average cost of paper is for the day or month and are astonished to find that under the new system they cannot get this information, and so feel lost. "Unearned burden," "burden variance,"

"conversion variances" are all Greek to them and unless the bright young man is very bright indeed, a remarkable personality, possessed of unlimited tact and in constant contact with the mill force he will be up against it. Then the storm bursts and the mill executives demand figures they can understand. They have not been sold on the new ideas. Sometimes the new system goes out the window; sometimes it drags out a miserable existence until finally rescued by a cost man who knows his stuff and has the personality to put it across, and sometimes it has the benefit of having with it a real cost man from the start, or an organization capable and desirous of taking the time to understand and use it.

The pity of it! Here is a really good system rendered useless because it is not understood and sold to the organization. The truth of the matter is that a standard cost system does not operate from the first; unlike a budget it takes a year or so to get going and really produce results. During this time all concerned must exercise patience and the cost man must make the best of his time in making it plain to the force. Furthermore the underlying theory is not simple. When once grasped it seems like A B C, but until then it seems to fly right in the face of all accepted ideas. "What, the actual expenses divided by the actual production is not the cost?" "No, it is not. The cost is the normal cost; anything beyond this is a loss due to abnormal conditions." Try this on an ordinary mill man and see how far you get—unless you have prepared the way.

What to Do?

What can be done to avoid this waste of time? First pave the way. Get a really good cost man to survey the situation for you and determine what kind of a system should actually be adopted. Let him live with the mill for several months so as to set the stage and sell the idea. Then get in your accountants to "install" the system. They have the organization and can do it most rapidly—of course, if it is a small mill, the same man can do this without outside help—but get it done and out of the way as rapidly as possible, then keep your cost consultant on tap as long as necessary until the system is functioning and the bright young man is really operating it satisfactorily. This may take one, two or three years. If you already have a treasurer or controller who knows standard costs and is not afraid to fight for the system, he can most likely put it across, but the cost man should practically live up at the mill so as to point out to the mill men daily, weekly and monthly the specific points of advantage and be right on the spot to give it the start it needs.

In any event see that your mill, your cost system and your cost accountant all get the square deal they all deserve by having the close personal and intimate contact between the cost department and the mill that is essential, and take care that the system is operated by somebody more than a mere clerk.

System for a One Product Mill

Now to get down to brass tacks and start off on our actual application of costs. We shall take as our first case a sulphite mill as representing a one-product mill and in this case we shall assume a mill that makes and sells only the one thing—sulphite pulp. All its energies and capital are devoted to this one thing. What then is the cost?"

Is not the actual expenses divided by the actual production in such a case? Surely this would appear to be selfevident, but unfortunately things that appear selfevident are not always so on close examination. What period shall we consider? Take the total costs and production for February 28, 1928. Let us say this gives us $75 a ton. Now the total costs for the month of February divided by the production will be, say, $70 a ton—including, of course, the same production as before, while that for the year 1928 will be $65 a ton. Three costs, all including February 28. Worse, if we had a fiscal year ending February 28, we should get still another cost from that of the calendar year. Four (and many more) costs all covering this production of February 28, 1928, each actual, each true, but which is right?

Another case. Let us run the mill six months with an average cost of $60. Then we shut down but the overhead goes marching on. By the end of the year the cost is $80, $90 or, "what have you?" Suppose we run a month then shut down a month, run another and so on, alternately running and shutting down all year—again we get $80 pulp; finally let us suppose we run continuously all year but at half capacity—again the $80 pulp—and yet, while we did run, or if we ran at full speed, it would be $60 pulp. What is the true cost? Actual cost men say, "Whatever it turns out to be during the period under consideration." Standard cost men say, "The cost under normal conditions of operations only; any excess is a direct loss due to abnormal conditions and not a part of the cost of the products." It's like the little pea game—pick your own shell.

The truth is there is no absolute actual cost in a going concern. There can be no absolutely final and correct cost determined until the company is closed and liquidated. It is a matter of judgment; whichever is most useful, all things considered is the one to use. Relative costs can be secured, yes, and that is all we need and we can ever get until the final curtain is rung down.

An Actual Cost System

For a simple one-product mill, such as our sulphite mill under consideration, the so called "actual cost system" is easy to understand and may be good enough to give a control, especially when supplemented by the manager's personal knowledge and contact with business. The following system is the best of its kind it has been the writer's privilege to

see and one well worth careful consideration. It is illustrated in the accompanying form.

It is based on a production budget. It distributes responsibilities and holds men to them. It clearly isolates the controllable from the noncontrollable items and it makes a direct comparison between the actual expenses and the budgeted (in total for each item), so that by inspection those that are out of line may be readily seen.

It does not show the normal costs and it tends to combine variables which are unrelated, with the consequence that an excessive cost may be hidden by a fortunately high production. It does not take advantage of the "law of exceptions" and it brings up daily all matters whether revelant or not and it does not point directly to the causes of variances.

Departmentalization

The first step is to departmentalize the mill (this system concerning itself with factory operations

Sulphite Mill.
Accumulative Daily Costs. _____ 192

	Department	Item	Actual Cost	Accum. Per Ton	Accumulative Costs Budget	Accumulative Costs Actual	Department Costs Total Budget	Department Costs Total Actual
1	Pond.	Wood	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx		xxxxx	xxxxx		
		Culled Wood	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
2	Wood Room	Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
3	Wood Room Power	Culled Wood	xxx		xxxxx	xxxxx		
		Coal	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
	Total Wood Depts.			xxxx			xxxxx	xxxxx
4	Acid Room.	Sulphur	xxx		xxxxx	xxxxx		
		Limestone	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
5	Digestors	Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
6	Blow Pits	Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
7	Screen Room.	Screen Plates	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
8	Bleach Room.	Hyd. or Burnt Lime	xxx		xxxxx	xxxxx		
		Liquid Chlorine	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Wires	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx		xxxxx	xxxxx		
				xxxx			xxxxx	xxxxx
	Total Pulp Mill.			xxxx			xxxxx	xxxxx
9	Machine Room.	Labor	xxx		xxxxx	xxxxx		
		Wires	xxx		xxxxx	xxxxx		
		Felts	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
10	Power Plant.	Electric Power	xxx		xxxxx	xxxxx		
		Coal	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
11	Yard.	Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
12	General Mill	Expense	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
13	Mill Office.	Expense	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
14	Shipping	Expense	xxx		xxxxx	xxxxx		
		Labor	xxx		xxxxx	xxxxx		
		Supplies	xxx		xxxxx	xxxxx		
		Repair Labor	xxx	xxxx	xxxxx	xxxxx	xxxxx	xxxxx
15	Water			xxxx			xxxxx	xxxxx
16	Depreciation			xxxx			xxxxx	xxxxx
17	Salaries			xxxx			xxxxx	xxxxx
	Total			xxxx				

Accumulative Production xxx.xx Budgeted Costs ÷ Actual Prod: xx.xx
Accumulative Actual Cost Per Ton xx.xx Budgeted Cost Per Ton: xx.xx

only) and to fix definitely responsibility. As will be noted in this particular case this has been done to a very considerable extent. In the particular case noted, the names of the various foremen are not shown on the reports, but this is a very good thing to do as it aids greatly in building up morale.

Particular attention is invited to the method of handling noncontrollable and general overhead charges collected in departments No. 11, 12, 13, 15, 16, and 17. These centers are not subsequently reallocated, nor, under this system, is there any reason why they should be. In this the plan is excellent. There being only one product this method gets them finally into the cost and saves a great deal of clerical work and also avoids confusing the issues in the other departments.

Each department has assigned to it the actual items controllable by that department and itemized so that there is a direct comparison in each case between the actual and the standard costs. This not only includes items of conversion but also raw materials, as for example items like the following listed for the acid room: Sulphur; Limestone; Labor; Supplies; Repair labor.

Where certain items of supplies are of sufficient importance to list them separately (as with wires in the machine room), this is done.

A Budget Plan

The system is, in essence, a budget. Each year or six months in advance a production budget is made up and, so far as possible, actual conditions for the individual months are foreseen and the standards set on this basis. Each foreman is required to submit his own estimates as to his requirements and expenses and this is finally adopted in conjunction with the management. Thus the system partakes of the benefits of the budget in looking ahead, thinking ahead by the men, co-ordination of activities and inducing them to watch and take an interest in their costs.

One feature that occurs to the writer is that it would be better if the standards for raw materials were on the basis of so much a ton rather than total amounts. Thus the standard for sulphur, instead of being a set sum per diem, would better be set at a percentage of the production. As the actual and budgeted productions rarely ever exactly equal each other, and as the materials do vary principally with the production, such a basis would be of greater aid.

Daily Reports

There are two daily reports, one for the day, and the other accumulative for the month to date. The form illustrated is an accumulative costs report, the only difference between the two being that on the form for the day's costs no itemized costs per ton are shown. There is, of course, also a monthly report which is the same as the accumulated costs except that the itemized costs per ton for the budgeted costs are shown and there is provided at the bottom a place for the necessary adjustment for pulp in process.

Various fixed charges, such as fire insurance and so forth are strangely enough not considered mill costs in this particular case but shown separately as administrative expense on the monthly report. This procedure is not, of course, recommended.

For purposes of this system each item of expense is charged to the particular classification where it belongs; i. e., the pay roll distributed among the various departments, requisitions on the storeroom, classified as to the department, and class of expense and repair labor tickets similarly distributed. Direct items of supplies, etc., are charged to the departments through the invoice register. There should be nothing unusual about the mechanism of the system that would require elaboration.

Total Unit Costs

It will be noted that at the bottom of the report are places for three different total unit costs, one the actual, another the budgeted and the third the budgeted expenses divided by the actual production.

Thus the actual cost might be $75 per ton, the budgeted $70 and the third $80. The object of this is to show the effect on the costs of reduced or increased production over the budget. In the example cited, the actual cost is higher than the budgeted and the third figure shows that had expenses been at standard, production alone would have increased costs $10. Considering that the amounts for material as well as conversion are fixed at set rates per day the value of this comparison seems doubtful.

Large Costs

So that the sum of the daily total costs will always equal the accumulated costs for the month to date, and so that extraordinarily high expenses for a certain day will not throw out the comparisons, any single item of expense amounting to $100 or more is not thrown into the costs on the day it is incurred, but is placed into a reserve and fed gradually into the costs during the remainder of the month. Thus if a charge of $200 were incurred and there were still twenty operating days to go it would be charged in at the rate of $10 a day; if ten days to go, at the rate of $20 a day, if two days to go, $100 each day, and so on. This method has the effect of gradually increasing the daily costs from the beginning to the end of the month. It is given here for what it may be worth.

The use of this system should enable a manager to keep pretty well posted about his mill when supplemented by the intimate knowledge such a manager would necessarily have. Of course there is also other statistical data to be used daily relating to production, acid strengths, etc. The system is

further supplemented monthly by a special analysis of steam costs which is analyzed in considerable detail showing all costs on the basis of cost per 1,000 pounds of steam.

In our next article we shall describe how such a mill would be handled under a standard cost system and our readers can then judge for themselves the relative advantages of each.

Application of Electric Motors to the Pulp and Paper Industry

Part II—Chemical Pulp Mill Equipment Motors

By H. E. STAFFORD
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This is the second of a series of articles, the purpose of which is to show as nearly as possible the power requirements of the various branches and departments of the pulp and paper industry, and the types of motors best adapted for each. In an industry which is expanding at the rate the pulp and paper industry is, it is not an easy matter to compile a set of data which will cover all instances, but for the greater number of applications, the figures given will be found to closely approximate those required for present day practice, and when compared with those of a decade ago, will show a vast difference.
—Author.

INCLUDED in the category of chemical pulp are the grades produced by means of the sulphite, sulphate and soda processes. Owing to the chemicals used in these processes, the motors driving some of the equipment are subjected to severe operating conditions, and unless precautions are taken when ordering and installing the motors and control apparatus, considerable trouble will be experienced soon after the plant is started. The majority of the applications in all three processes consist of pumps, and since it is difficult to locate the pumps and motors, which for the most part are direct connected, where they will not be subjected to condensation, and occasional floodings, due to defective packing glands, gaskets, and pipe leaks, it is essential in most cases to provide the motors with metal hoods such as is shown in Fig. 4. These hoods completely cover the motor, but leave room for the free circulation of air in order to dissipate the heat generated in the windings and core.

Equipment Motors and Power Requirements of the Sulphite Process

The sulphite process consists of acid making, cooking, washing, screening and bleaching of the pulp.

Acid Plant—The connected load of a Jenssen acid plant is 50 hp. for a sulphite mill of 60 tons capacity. The largest motor, of which there are eight, is 10 hp. squirrel cage induction motors will serve on all of the applications with the exception of the gas blower, which requires a variable speed wound rotor motor. None of the acid plant motors operate under severe conditions, although the motor driving the rotary sulphur burner should have enamelled windings, owing to the high temperature of its location, and all motors should have their windings impregnated with acid resisting compound. The motors are usually all direct connected to their loads, with the exception of the sulphur elevator, which is belt driven.

Cooking, Winding, Screening and Bleaching—With the exception of the knot screens, pulp screens and agitators, the load in these departments consists of pumps, and with the exception of the bleaching plant, the pumps are usually direct connected to the motors. The bleaching plant pumps or bellmers are usually belt driven.

The horsepower rating of the pump motors for these departments varies 8.86 to 10.5 hp. per ton capacity, while the rating for the balance of the motors is approximately 2.1 hp. per ton. All of the pump motors, and all others subject to moisture conditions should be covered as shown in Fig. 4. Pump motors can be all direct connected to their loads. All of the applications are individual drive with the exception of the screens which are driven from a line shaft by a wound rotor motor. All other motors in these departments are squirrel cage induction. Owing to dampness, all motors should be impregnated against moisture, fumes, etc.

Wet Machines—Where the sulphite pulp is put up in laps for shipping, the horsepower rating of the wet machines, hydraulic presses and shipping elevator approximates 2.1 hp. per ton. The wet machines may be driven by individual motors, but as a general rule, they are line shaft driven from one motor, which results in a saving of power. Of the three motors in this department, one is a wound rotor motor and two are squirrel cage motors. All motors should be impregnated.

Screenings Plant—Where the screenings and knots are made into laps for making board and wrapping paper, the rating in horsepower for this department also approximates 2.1 hp. per ton of total sulphite production, but the actual requirements for the production of screenings stock is 20 hp. per ton. The equipment, which consists of a refiner, two pumps and a wet machine, requires either one or two motors, depending on the location of the equip-

ment. As a general rule two motors are required, one driving the refiner and pumps from a line shaft, the other driving the wet machine. Squirrel cage motors with impregnated windings may be used.

Total Sulphite Requirements—The total rating of all motors of a sulphite mill, including acid making, washing, cooking, bleaching, wet machines, and screenings plant, but exclusive of the wood preparation and fresh water supply is approximately 21 hp. per ton. With the wet machine and screenings plant departments excluded, the actual average power requirements of a sulphite mill over a period of three years was 15.8 hp. per ton.

Approximately forty motors are required for a 60-ton sulphite mill, exclusive of wood preparation and fresh water supply. As stated previously, all motor windings should be impregnated against moisture and fumes, and all control apparatus should be totally enclosed and moisture proof. The power factor of this load is around 85 per cent lagging, and the load factor is well over 75 per cent.

Equipment Motors and Power Requirements of the Soda Process

A 40-ton soda mill requires twenty-three motors, with a total connected load of 625 hp., or 15.6 hp. per ton. These figures do not include the preparation of the wood, or the fresh water supply. If the wood preparation is to be included, add ten motors and 270 hp. connected load, or 6.75 hp. per ton. Of this load, 8.86 hp. per ton is for pumps only, while 6.7 hp. per ton is required for all other applications exclusive of wood preparation.

Owing to the nature of the soda process, the motors in some departments are subject to severe operating conditions, especially in the causticising, bleaching, and bleach making departments. In these departments, and in practically every case, the motors should be the totally enclosed type and equipped with ball bearings. This type of motor is an expensive proposition, but since no insulation will stand up under the conditions under which these motors operate, the extra expenditure is warranted, and soon pays for itself in decreased maintenance costs. The life of an ordinary motor is not greater than six weeks under the best of these conditions.

The following data represents a survey of a 100-ton soda mill:

Wood Preparation Power Requirements—The wood preparing equipment necessary for the soda process consists of barkers, a chipper, chip screen, crusher, chip conveyor, refuse conveyor and wood conveyors, and the requirements are much the same as for the sulphite process. The actual connected load per ton of production is 6.9 hp. per ton, or practically the same as for the 40-ton soda mill.

Water Supply Requirements—The water requirements are approximately 80 gallons per minute per ton, and the power rating in connected load is 4.4 hp. per ton. The pumps should assure a continuous supply of fresh water, and therefore should consist of at least two units at each head. The low head pumps should be situated near the supply, in a separate pump house, where the water may be filtered if necessary, while the high head pumps are usually located in the evaporator room. Squirrel cage induction motors are the most adaptable for this application.

Evaporator Room Requirements—Apart from the high head pumps just mentioned, the evaporator room equipment consists of evaporators, leach liquor and hot-water pumps. The motor rating in connected

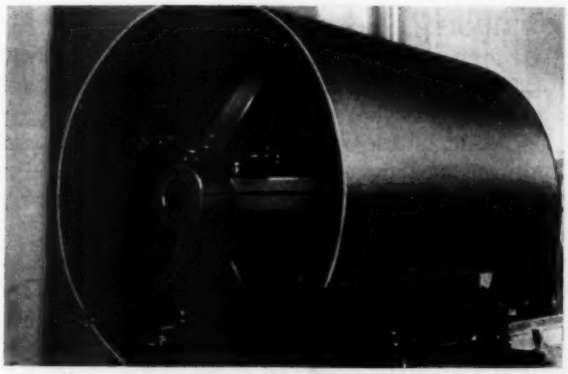


Figure 4

load for this equipment averages around .28 hp. per ton. These motors should preferably be totally enclosed owing to the deteriorating effects of the chemicals. Even the high head pump motors should either enclosed or belt drive connected to their load. If totally enclosed, all pump motors may be direct connected.

Screen and Wash Room Requirements—For the screening and washing of soda-pulp, approximately 2.65 hp. per ton connected motor load is required. The brown stock pumps may be direct connected to the motors, but the balance of the pumps and screens should be belt driven. The wash room motors should be totally enclosed. Either wound rotor or squirrel cage induction motors may be used for the screens, and squirrel cage motors for the other applications.

Bleaching Requirements—The requirements of the bleach mixing and storage, the bellmer room, and bleaching approximates 3.45 hp. per ton connected motor load. The equipment, with the exception of one small liquor pump should be belt driven, and with the exception of the bellmer drives and stock pumps, should be provided with totally enclosed motors.

Machine Room Equipment Requirements—The power requirements of the machine room, consisting of circulating, white water and white stock pumps approximates 3.6 hp. per ton in connected motor

(*Continued on page 1573*)

Current Thought by William Sibley

The Teachings of Wall Street

THERE is nothing new about the recent stock market crash, except perhaps, the magnitude of the losses. Never before has so much real and paper loss been sustained and in this regard the recent stock market nose dive is outstandingly spectacular. In principle, however, it is in no wise different from other crashes of earlier records. It merely has been proved again that in spite of all advances made in science and engineering, the factor of human nature is still the most powerful in the control of business and finance. It merely proves again that in spite of all the lessons of history and all the man-made laws and rules, there are just as much selfishness and greed today as in years gone by. It merely proves again that our generation will seldom profit by the experience of the former—that we still have among us simple souls who believe they can get something for nothing—that the majority of us refuse to learn by the experience of others.

The United States of America is perhaps the most peace loving nation on earth. Conflict with our neighbors is so distasteful to us, and the principle of aggression so foreign to our make-up that we are constantly doing more than any other nation on earth to promote peace. Yet, even here, we have had a major war on an average of once in every generation. And always with increasingly disasterous results,—because we refuse to learn from the experience of others.

Here in America we have gone far in the matter of increasing production efficiency. This magazine, every month, carries a multiplicity of advertisements for methods, machinery or equipment which, **it has been proved,** will cut costs a liberal percentage. Yet we have mills by the score who still insist on firing their boilers with scoop shovels, and toting their heavy rolls of paper on hand trucks,—because of the inborn characteristic of refusing to profit by the experience of others.

Not only do we insist upon suffering the consequences of blindly following our own limited comprehension, but we inevitably repeat history by becoming pessimistic when our self-invited crash materializes. The paper manufacturer whose prosperity is profitless bewails his fate and bemoans his losses rather than engage himself in a mental and physical housecleaning. The administration which finds itself in war invariably ends up by scrapping all possible war material and leaving the country in a worse state of unpreparedness than it was before. And today, just as in 1903, 1907, 1914 and 1921 we find pessimism running rife and very falsely, foolishly and needlessly causing order cancellations, and business restrictions.

The present record-breaking slump in the stock market is a sad reflection on our boasted intelligence. The highest government officials and the most powerful of American bankers lent definite encouragement to the speculative forces when stock prices were at ridiculous levels. Reassuring statements were issued from Washington and from most of the other seats of authority at the crest of the upward movement. Already some of these highly respected leaders are not only washing their hands of the entire affair, but are placing the blame on the public. However, this is no time for "I told you so-s". We need now to recognize that this is a period in which to rebuild confidence—a time for stemming pessimism—a place to begin where the quitters left off.

President Hoover in his recent conference with industrial leaders did much to destroy the needless pessimism which was rapidly gaining headway last month. But President Hoover, and a handful of leaders, however powerful, cannot do the job alone. Complete restoration of full blown confidence rests with you and me and all of us. And universal confidence will be restored if we give our ears a rest and exercise our eyes and hands. Recalling some of the old-fashioned ideas of work and thrift, which were tossed aside a year or so ago by too many will give us all a chance to see that the outlook for solid, substantial progress is brighter than it has been for three years. As Floyd Parsons remarked in a recent statement: "The present is a time when one must think for himself."

Most of our great American fortunes were established by those who had faith in the future of the United States, who relied on their own judgment as

to the trend of industry, and who had sufficient courage to act with speed and decision in the face of a flood of ill reports and dire forebodings. It is always a good plan to insist on the right to use one's own brains in managing one's own money.

We are passing through the most violent financial upset ever experienced. As is usual, many people are now afraid to buy stocks at fifty, that they literally fell over themselves trying to get a hundred. These timid souls have decided that business is going to get bad and that when industry appears to be at its worst, they will be able to buy whatever they want at their own price.

There is no doubt that the Wall Street crash will be felt throughout the world. Millions of people have lost money and will have to practice greater economy. But most of the large losses have represented merely the wiping out of paper profits. No actual property has been destroyed. While some industries engaged in producing luxuries are sure to suffer, various other lines of business will be benefited. The release of money tied up in stocks will help the building trades. Managements will give increased thought to improving the efficiency of their operations, and thousands of workers will now devote more attention to their jobs and less to studying stock tickers.

Out of it all come important lessons that none of us should fail to note. First we should fix in our minds the unmeasured power of mob psychology.

Mass fear supported and aided by absurd price levels is all that is needed to produce a panic in the security markets of the world. We must also remember that it is the demoralized market which hurts business, not business the market. Trade and industry are fine and will continue at a satisfactory pace as soon as they are freed of the influence of daring exploiters whose chief aim is to profit through mergers and price manipulations, rather than the production of goods.

But we may be sure that the public will go on living very much as it has been accustomed to live. There will be no perceptible lessening of street traffic. Gasoline consumption will continue increasing. Radio programs will fill the air. The nineteenth hole at golf clubs will still be well patronized. Young people will go on getting married and living in homes supplied with radios, vacuum cleaners and mechanical refrigerators. We will cook the same quantity of food, read as many books and wear about as many clothes as usual.

Let us not forget that the world is a big place and hundreds of millions of people continue to do business in the usual way irrespective of what happens in Wall Street. Even here in the United States, the major portion of those residing in the little towns know Wall Street only as a place they read about in their daily and weekly papers. In these little towns the people live more or less on their trades with one another. Those, like myself, who were born and raised in a small town, know very well how true this is.

We have been supplied with positive proof of the worthlessness of loose talk in a time of prosperity, so let us not be caught both going and coming by giving too serious attention to those who are now preaching adversity. It has always happened that after each great stock-market decline there were many who decided that the sun would never shine again for American business and industry. But through an exercise of courage, economy and well-directed energy, confidence is finally restored, prosperity returns, and hope displaces a veritable flood of unjustified fears.

Now is the time for each one of us to exhibit our mettle; to show what we are made of. Grappling with difficulties is the only way to overcome them. If there were no serious troubles to face there would be no success; if there were nothing to struggle for, there would be nothing to be achieved. Instead of groaning over our hard luck, and scanning the horizon for clouds not yet in sight, let us grin, work and show contempt for the preachings of the weak-kneed apostles of misfortune.

Application of Electric Motors

(*Continued from page 1571*)

load. The pumps may all be direct connected to standard squirrel cage induction motors.

Summary of Soda Mill Power Requirements—A comparison of the two different sized soda mills will show that when all departments are included, the requirements of the 40-ton mill, are 22.35 hp. per ton, while those of the 100-ton mill are 22.24 hp. per ton.

The writer has repeatedly mentioned the fact that totally enclosed motors are desirable in a plant of this kind, and from figures available, is able to prove that the extra investment will show a net profit in four years time.

Equipment Motors and Power Requirements of the Sulphate Process

The sulphate process differs but little from the soda process as to the power requirements, departmental layout, and types of motors required.

In the evaporator room, causticising plant, wash room, and rotary furnace room, the motors should be either totally enclosed or impregnated and placed where they are not subjected to the noxious fumes. Impregnated motors only prolong the evil day, and for long service, the motors should be totally enclosed. The balance of the motors may be standard squirrel cage motors. The drives may be laid out similar to those either in the sulphite or soda processes.

The power requirements in connected load will approximate 22 hp. per ton, and the department loads will vary but little to those of the soda process.

Along the Border

Description of Activities of Fraser Companies, Ltd., at Edmundston, New Brunswick and Madawaska, Maine

By HARRY E. WESTON
Staff Representative

LESS than sixty years ago, Donald Fraser left Scotland with his family to settle with a colony of fellow-countrymen in the province of New Brunswick. He began sawmill operations in a small way in 1878 at Rivier de Chute, N. B. The lumber business prospered and expansion in the field of wood utilization has continued down to the present. The present company, incorporated in 1917, was the result of consolidating a number of companies formed during and after the partnership of Donald Fraser Sr. and his two sons joined with him during the early days of his activities in his adopted country.

To-day, with the sons of the pioneer guiding the destiny of Fraser Companies, Ltd., finds an organization that controls, by crown grant, approximately 4,000 square miles of timberland which will yield approximately 20,000,000 cords of pulpwood and owns and operates fourteen lumber mills which will have manufactured about 190,000,000 feet of lumber, 190,000,000 lath, 240,000,000 shingles and 280,000,000 cedar ties during the year 1929.

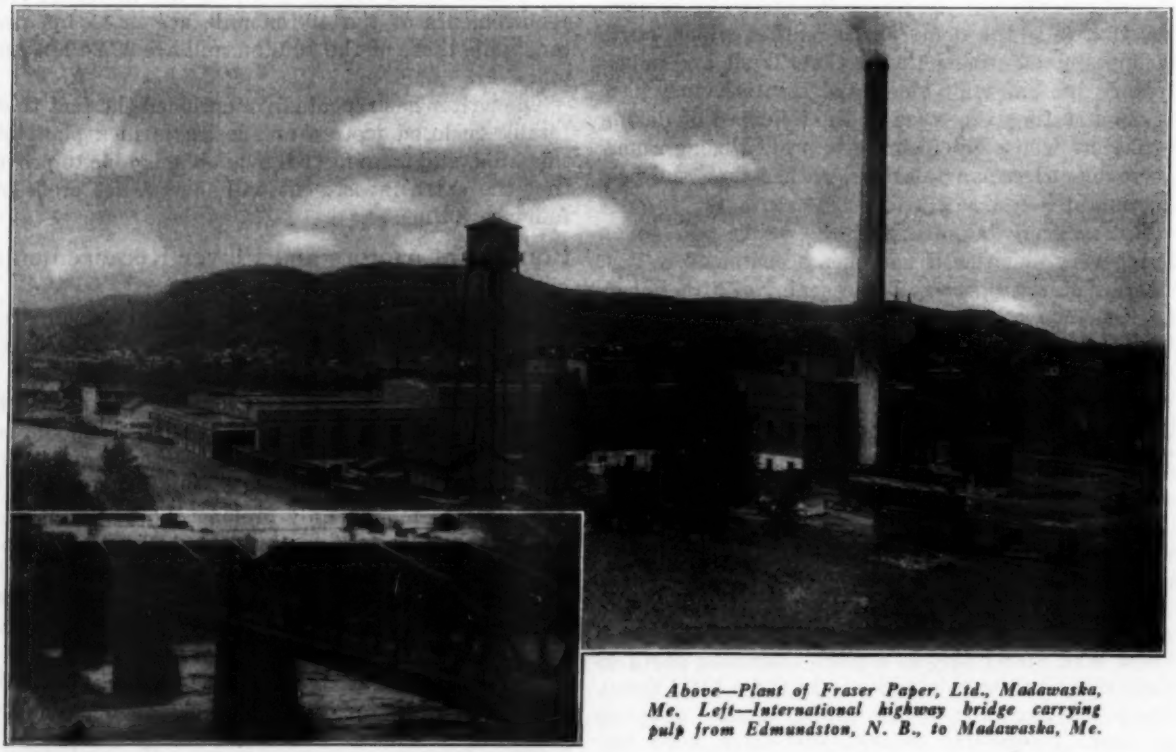
In addition to activities in the lumber industry, the Fraser organization became producers of sulphite pulp in 1918, paper in 1925, and groundwood pulp in 1928. The major development to date has been at Edmundston, New Brunswick and Madawaska, Maine. Edmundston, one of the most important cities of the province and located about 350 miles north of Boston and 300 miles northeast from Montreal, is served by the Canadian National, Canadian Pacific, and Temiscouata railroads. It is located on the St. Johns river which at this point is the boundary between the United States and Canada. Across the river from Edmundston is Madawaska, Maine.

The original development at Edmundston was a bleached sulphite pulp mill of 160 tons daily capacity. This plant began operation during 1918 and served as an entree for the Fraser Companies, Ltd. into the pulp and paper field. In 1925 a two machine paper mill capable of producing 75 tons of bleached paper daily was started at Madawaska. During 1926, one of two pulp drying machines installed in the pulp mill on the Edmundston side was rebuilt for board manufacture. This same machine was further improved during 1928 to increase production.

Other activities which culminated during 1928 included the installation of two additional paper machines in the mill at Madawaska to handle the surplus production of bleached sulphite pulp. These machines were placed in operation during February and April. In August, of 1928, a semi-sulphite pulp plant was ready for operation, and during October a groundwood pulp mill was placed into production. A catalogue mill with an original installation of one machine began to operate during November, 1928, and a board mill with one machine in January, 1929. Another machine is now being installed in the catalogue mill and it is expected to be in operation before the close of the year.

Both the groundwood and semi-sulphite pulp plants were located on the Edmundston side along with the original sulphite mill and board plant, while the paper mill development was on the Madawaska side.

The present enterprise giving employment to approxi-



Above—Plant of Fraser Paper, Ltd., Madawaska, Me. Left—International highway bridge carrying pulp from Edmundston, N. B., to Madawaska, Me.

mately 1,200 people, therefore, consists of a sulphite mill, semi-sulphite mill, groundwood mill and board mill in Edmundston; and a bond mill, catalogue mill and board mill in Madawaska. The daily production of each of these various units approximates 160 tons of bleached sulphite, 45 tons of unbleached sulphite, 45 tons of semi-sulphite, 60 tons of board in Edmundston plant; 60 tons of groundwood, 150 tons from bond mill—about half of this production being waxing paper, 70 tons of catalogue which will be increased to 140 tons with the installation of the new machine and about 75 tons of board including test liner, patent coated, bottle cap, ice cream and pie plate container, etc. from the board mill of the Madawaska side.

Left—New administration building at Madawaska, Me.

Right—View of main office at Edmundston, N. B.

Pulp Manufacture

Much of the wood supply for the sulphite and groundwood plants, slashed to 4-ft. lengths, is barked in a system of Thorne barkers. This system was built by the Canadian Allis-Chalmers Ltd. and was installed during 1928. It consists of two units of three barkers each, each barker having three pockets. Each pocket is 4 ft. 6 in. wide and is designed to handle 4-ft. wood. The barking installation has a maximum capacity of 60 cords of wood per hour.

After the wood has been barked, it is carefully sorted, a portion being reduced to 2-ft. lengths for reduction in the grinders and the rest is chipped by Carthage chippers and screened over Waterous reciprocating screens.

The raw material for the semi-sulphite mill is largely mill waste which is obtained from the surrounding sawmills. Cullwood from the sulphite and groundwood plants is also used in the production of this grade of pulp.

Sulphite and Semi-Sulphite Mill

The digester installation consists of six 17-ft. x 56-ft. digesters for sulphite and two 17-ft. x 56-ft. digesters for the semi-sulphite. The digesters are arranged together and are painted with aluminum paint which gives them a very clean and attractive appearance. The semi-sulphite digesters were built by John Inglis Co., Ltd., while the steel for the digester room extension necessary for the production of semi-sulphite was erected by the Dominion Bridge Co., Ltd.

All of the digesters are filled with acid from the bottom. The six digesters on regular sulphite are equipped with the decker system. Bristol and Foxboro temperature and pressure instruments are used on all of the digesters. Some of the digesters are also equipped with Bailey and Republic steam flow meters. One concrete blow pit is used for each digester. Each pit has a capacity of two and one-half blows, and is equipped with a perforated wood false bottom.

The screening installation consists of eight Sherbrooke knotters—six on regular sulphite and two on semi-sulphite, five improved Sherbrooke centrifugal screens with .055 perforations, four Westbye centrifugal screens with .055 perforations, two Bird pulp screens with .050 perforations, a Westbye prescreen, and flat tailing screens. The Bird screens are used for screening the semi-sulphite.

The rejects from the eight Sherbrooke knotters are refined along with the semi-sulphite in two Hardinge 6-ft. x 12-ft. rod mills arranged in series and charged with 20 tons of carbon steel 2 15/16-in. rods. The tailings from the rotary screens go through a Westbye prescreen. The rejects are refined in the rod mills, while the good stock passes to flat tailing screens as in common practice. All rejects from the Bird pulp screens are returned to the rod mills for additional refining.

The screened sulphite stock is then pumped to the thickeners. The thickener installation consists of four units each with a mold 42 inches in diameter and a 128-inch face. White

water from the thickeners is used as dilution water for the tailing screens and for dilution of stock. Excess water is passed to the save-all installation.

The stock from the thickeners at about 6½ per cent density is pumped by a Viking pump to the Bellmers. It is fed to the Bellmers through a 10-in. hard lead pipe with the bleach liquor added from storage to the stock pump so that it is mixed with the stock before entering the Bellmers.

The Bellmer installation consists of ten 5-ton capacity units. All of the tubs are of concrete and for the most part are tile lined. The propellors for each of the units are of malleable iron and are belt driven. Stock is handled in the bleaching units at about 4.7 per cent density and a temperature of 90 deg. Fahr. The bleaching time approximates 6 to 7 hours with an average bleach consumption of 18 per cent. All bleach liquor is sand filtered before use.

The bleached pulp from the Bellmers is dropped into a chest from which it is pumped to three 3-cylinder Thompson Mfg. Co. washers where the remaining chlorine is removed. The effluent from the washers is sent to the sewer. The finally washed pulp, stored in a chest, is screened over twenty-four 12-plate Waterous screens, a portion of the plates having .009 slots and the rest having .008.

The rejects from the flat screens is mixed with the semi-sulphite while the accepted stock is again thickened. Three deckers and two A. D. Woods machines, all with 120-in. face are used to increase the density of the bleached stock. The consistency is increased from about .3 per cent to about .8 per cent. In this condition it is ready to be pumped to the paper mill on the Madawaska side.

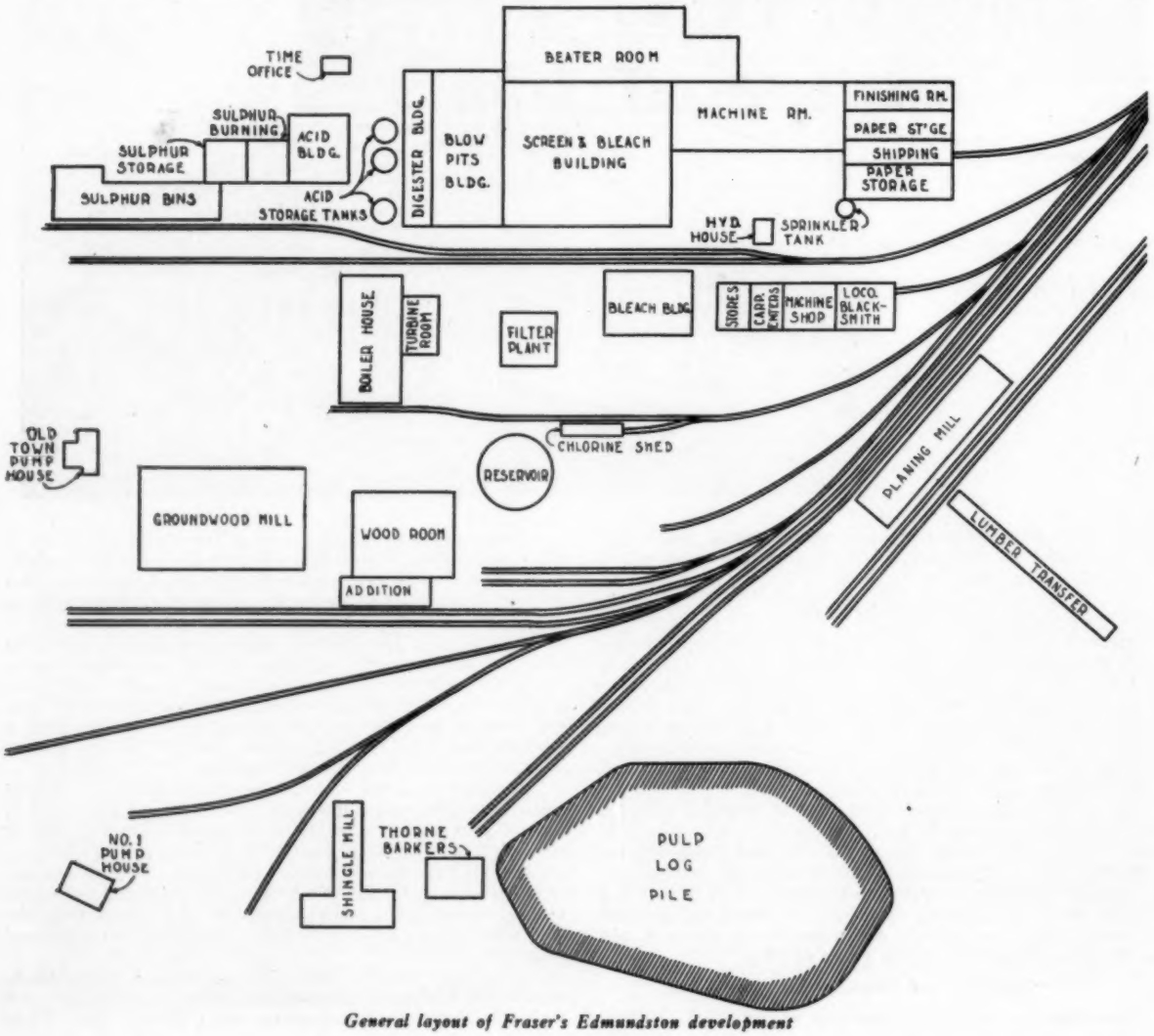
Three rotary burners, one of them as a spare, are used to manufacture the gas for use in the preparation of acid for both sulphite and semi-sulphite production. The burners are equipped with both the common melting tank and the stoker for feeding the sulphur. The hot gas from the burners is cooled in a typical Jenssen type cooler and then passes to one of two complete Jenssen tower systems. One system is used for the preparation of acid for regular sulphite production while the second is used for preparing the acid for the semi-sulphite mill. The two towers in each system are each 11-ft. x 87-ft. and of reinforced concrete construction lined with acidproof brick.

One of the interesting features of the acid system is the construction of the tanks used for storage. There are three tanks in use—one with a capacity of 114,000 gallons, a second with a capacity of 96,000 gallons, and the third with a capacity of 80,000 gallons. Each of the three tanks are of reinforced concrete construction and are lined with acidproof brick.

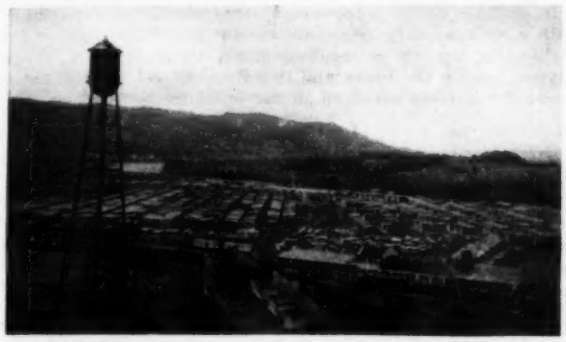
Groundwood Mill

The groundwood mill is most excellently arranged and well lighted. It was so designed that it can readily be kept clean.

The grinder equipment consists of five lines of Waterous



General layout of Fraser's Edmundston development

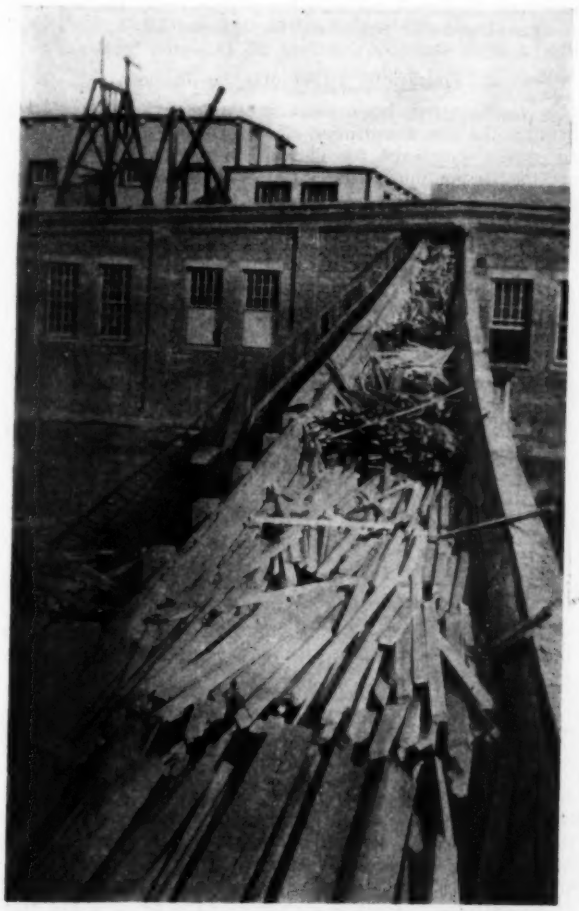


View of lumber piles, Edmundston, N. B.

The block pile, Edmundston, N. B.

three-pocket grinders with four grinders to a line. Each line is directly driven by a 2,400 hp. 6600 v. Westinghouse synchronous motor operating at 240 r.p.m. The line of motors is located in a room adjoining the grinder room to give them best possible protection against any of the operating hazards. The pulpstones for each of the grinders are 27-in. x 53-in. All grinders are equipped with the Ross Engineering of Canada, Ltd. vapor removal system to handle the "fog" so prevalent during the winter months in many grinder rooms not equipped with such a system.

The pulp issuing from the grinders is first screened by two Pascal bull screens for the removal of slivers, and then the accepted stock is again screened in four Waterous quiller type screens. The openings in the plates of the sliver screens are ¾-in. round holes, while the fine screens used perforations is .055 round. Rejects from the bull screening installation are conveyed to the boiler house where they are used for fuel. The screened pulp is deckered on two United filters which were supplied by John Bertram & Sons Co., Ltd. Each of the filters was a ten-disc machine and used discs that were ten feet in diameter. Texrope drives were used on all of the screens and Westinghouse motors were used exclusively.



Wood refuse on way to pulp mill, Edmundston, N. B.

Edmundston Board Mill

The major process equipment of the Edmundston board mill would include three 1,300-lb. beaters, three Waterous jordans, six Bird paper machine screens and the rebuilt pulp drying machine which was mentioned previously. This machine was rebuilt by the Charles Walmsley & Co., Ltd. It is equipped with six cylinders to which are attached the six Bird screens, one for each cylinder. The cylinder machine dryers have a 130-in. face. In addition to the equipment already mentioned would be a Farrel calender stack, a Cameron rewinder, a Hamlet board cutter and two Seybold trimmers to complete the list of process equipment of the Edmundston board mill.

At this point, brief mention has been made of the major plant activities on the Edmundston side of the St. Johns river. Data has been presented on the sulphite and semi-sulphite mills, the groundwood pulp mill and the Edmundston board mill. The papermaking activities on the Madawaska side of the river will now be outlined.

It should be stated that the pulp mills in Edmunston are connected with the paper mills in Madawaska with pipe lines. The distance from the pulp mills to the paper mills is about one mile and over this distance the pulp produced in Edmundston is slushed through the pipe lines at about 1 per cent consistency to the mills at Madawaska.

Papermaking Activities on American Side

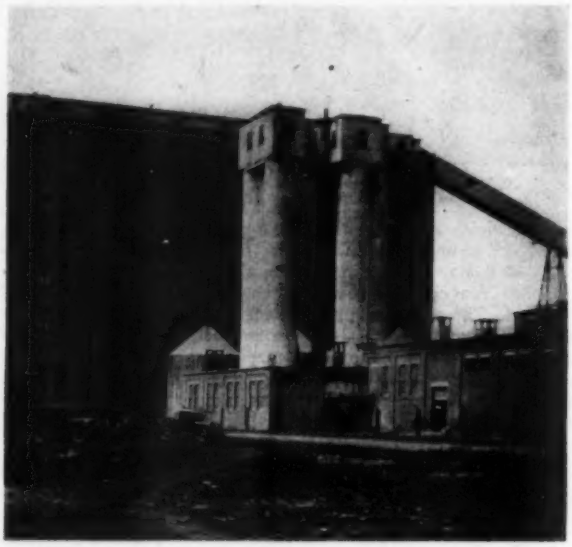
The papermaking activities on the Madawaska side are grouped around the bond mill, the catalogue mill and the board mill. All stock pumped over the river from the pulp mills in Edmundston must be dewatered.

Bond Mill

Eight deckers and two Oliver filters are used to dewater the stock supplying the bond mill. This stock, if desired, may be bleached in a 50-ton bleaching unit which has been built in connection with the bond mill. This installation was made to permit superbleaching of the stock or to produce a pulp of very high whiteness whenever conditions warranted. The bleaching system consists of a standard vertical high consistency unit which was supplied and erected by the Pulp Bleaching Corporation.

In addition to the dewatering equipment and the bleaching unit is such beating and refining equipment as is necessary to prepare stock for four paper machines. Two of these machines are producing bond paper and two are producing waxing paper. According to the machine numbers at the mill, machines No. 1 and 3 produce bond, and machines 2 and 4 make waxing paper.

The beating and refining equipment for Machine No. 1 includes four Dayton beaters, one E. D. Jones jordan, and one E. D. Jones claflin. The paper machine, built and erected by Pusey and Jones Corporation, trims 154-inch. The machine is equipped with a Voith high pressure inlet, a Millspaugh suction couch, and a Millspaugh suction first press. Broughton's system is employed for removing condensate from the



General view of Jenssen acid system, Edmundston, N. B.

paper machine dryers and for supplying steam to them. The calender equipment consists of one Farrel stack. A Camachine is used for the winder. The save-all equipment consists of an 18-ft. diameter Dorr tank and a repulper for colored "broke." Machine No. 1 operates on colored bonds and specialties.

The line of equipment supplying Machine No. 2 is exactly the same as for Machine No. 1 with the single exception of a substitution of a Midwest broke beater for the repulper. Machine No. 2 is a duplicate of No. 1 and is operating on waxing paper.

No deckers are employed to dewater the stock supplying Paper Machine No. 3. In place of the deckers, an Oliver filter with a cylinder 8-ft. 1-in. in diameter and a 12-ft. face is employed. A 20-ft. barometric leg creates vacuum for the unit. This filter is employed both as a dewaterer and save-all. The beating and refining equipment for Machine No. 3 consists of four 1,300-lb. Midwest beaters and two E. D. Jones jordans. Three Bird paper screens are also installed ahead of the machine. The machine made by Pusey and Jones has a wire 202-inches wide, and is equipped with a Millspaugh suction couch, three presses, and a smoothing press. The Fulton system with a Pickles regulator is used for temperature and condensate control of the dryers. This machine is equipped with two Farrel calender stacks, in place of one as in the case of machines No. 1 and 2, and also uses a Cameron winder.

An Oliver filter of the same size as is used for dewatering stock for No. 3 machine is employed for No. 4 machine. This filter is likewise employed as a save-all as in the previous case. The beating equipment consists of three Midwest beaters and two E. D. Jones jordans. The machine is a Pusey and Jones and is equipped with a 196-in. wire, a Voith high pressure inlet, a Millspaugh suction couch, two presses, a smoothing press and a "pick-up felt" arrangement. A Fulton system together with a Pickles regulator control the temperature of drying and the removal of condensate from the dryers. Paper Machine No. 4 has been designed for a speed of 1,000 feet per minute when operating on lightweight waxing.

In addition to the process equipment mentioned, one Oliver with a cylinder 5-ft. 6-in. in diameter and 96-ft. face is installed for use on unbleached stock, three Midwest broke beaters handle the broke and two Hamblet cutters and three Seybold trimmers are used in the finishing room.

Catalogue Mill

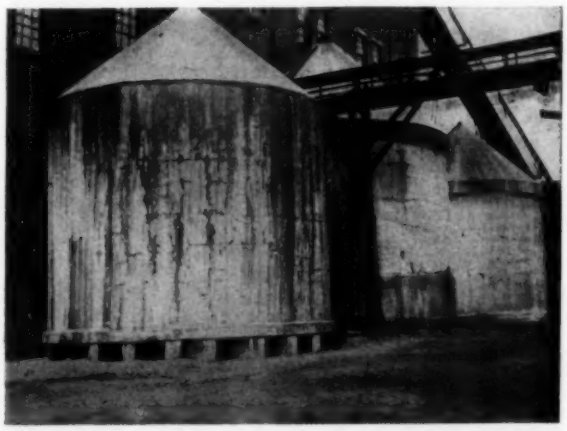
The dewatering and save-all equipment of the catalogue mill consists of one 10-disc United filter of 50 tons capacity for handling groundwood, one combination 11-disc United filter for handling 50 tons of groundwood and 35 tons of sulphite. The furnish for the catalogue paper is metered and mixed in a Trimbey meter and mixing system and is then jordaned by two E. D. Jones jordans. The refined stock is pumped to the paper machine which is equipped with three Bird paper machine screens. The paper machine, designated as Machine No. 5, is also a Pusey and Jones. It has a wire 224 inches wide, and is equipped with a Voith inlet, a Millspaugh suction couch and first press, Fulton drying system with Pickles regulator, Farrel stack, Pope reel, and Cameron winder. The machine is designed for an average speed of 1,000 feet per minute.

"Broke" from the machine is handled in a Midwest broke beater, which is equipped with a Griley-Unkle extractor. Such clay handling equipment as was required, was supplied by the Jeffrey Mfg. Co., while necessary mixing tanks and agitators were furnished by The Hill Clutch Machine and Foundry Co.

The new machine, now being installed, is designated as Machine No. 6. This machine is a duplicate of Machine No. 5, and when placed in operation, will increase the production of the catologue mill to approximately 140 to 150 tons per day. With this machine being installed, it has also been necessary to install additional equipment for beating and refining. The major equipment for this service includes four Dilts 2,400-lb. beaters and four E. D. Jones jordans.

Fourdrinier Paper Machine Drives

No mention has been made in the descriptive material covering the five fourdrinier machines now in operation, of the system employed for driving them. Each of the five machines is equipped with a Cutler-Hammer Harland drive and Reliance Electric and Engineering Co. motors. It will be remembered that in the Harland drive as in other sectionalized electric drives, a direct current motor of suitable



Acid storage tanks made of concrete and lined with acid proof brick, Edmundston, N. B.

capacity is coupled to each of the various sections of a machine, and the motors are so tied-in in relation to one another that the speed of each individual motor is maintained in its proper relation to every other motor in the drive. The control of speed in the Harland drive is accomplished by means of an extremely sensitive governor in the form of the Harland Interlock Control.

The requirements of a typical drive may be shown by tabulating a few facts concerning the drive on Paper Machine No. 5, the machine manufacturing catalogue paper.

Motor Application	Quantity	Full Load HP.	Speed	Power Characteristic	Mechanical Connection
Suction Couch	1	160	800	460/230v.d.c.	Reduction Gear
First Press	1	75	850	460/230v.d.c.	Reduction Gear
Second Press	1	75	850	460/230v.d.c.	Reduction Gear
Third Press	1	75	850	460/230v.d.c.	Reduction Gear
First Dryer	1	160	800	460/230v.d.c.	Reduction Gear
Second Dryer	1	160	800	460/230v.d.c.	Reduction Gear
First Calender	1	160	800	460/230v.d.c.	Reduction Gear
Reel	1	60	870	460/230v.d.c.	Reduction Gear

Board Mill

The Madawaska board mill uses two ten-disc United filters and one two-disc unit of the same make as deckering and save-all equipment. The two ten-disc filters are used on groundwood and have a capacity of 50 tons each. The two-disc filter is used on semi-sulphite.

The beating and refining equipment of the board mill consists of six Midwest beaters and four Jones jordans.

The paper machine is a seven cylinder Pusey & Jones machine equipped with a Harvey Llewellyn paper thickness control system and with Black-Clawson patent vertical dryers. The cylinders have a 148-in. face, while the dryer section is five decks high and contains 110 dryers. The dryers are equipped with the Fulton System to remove the condensate from them. Two Farrel calender stacks and one Moore and White cutter and winder also form an integral part of the machine. The machine is driven by a variable speed Westinghouse motor with the maximum speed of the machine at 250 feet per minute.

Process Pumps

The pumping installation is necessarily large to meet the requirements of the bond mill, the catalogue mill and the board mill. Goulds pumps are used practically exclusively for all work other than for vacuum purposes. Most of the pumps are located in the basement of their respective mills. In the basement of the bond mill were noted such pumps as are required for supplying stock to the four paper machines and for meeting the vacuum requirements of the same units.

The most important pumps in the bond mill might be tabulated as shown on the next page.

The list of pumps in both the catalogue mill and the board mill is also extensive. Previous to construction operations for the addition to the catalogue plant, there were twenty-seven pumps in use within the catalogue mill. These pumps, exclusive of pumps for vacuum service, ranged in capacity from 20 gallons to 5,500 gallons per minute. They were handling such materials as alum, clay, stock and water. All of these pumps with only a single exception were either Goulds plunger or centrifugal units.

The vacuum requirements on the paper machine were met by the installation of several Nash units, a No. 726 flat box unit on the flat boxes, a Nash Hytor No. 8, No. 7, No. 4 and No. 2 on the suction couch, suction press, felt conditioner, and felt boxes respectively. A Connersville pump was used on the filter installation.

Most of the pumps installed in the board mill were also Goulds units. Two Shartle triplex plunger pumps were installed to pump the stock from the beater dump chest to the jordans, and a No. 2 Nash created vacuum in the felt boxes of the cylinder machine. Several other pumps were used in conjunction with the filter installation. Goulds pumps constituted the remaining number of pumps in the board mill.

Power

Most of the electrical energy used on the Edmundston side is obtained from Grand Falls, N. B. The average electric load on this side of the river approximates 1,300,000 kw. hr. per week.

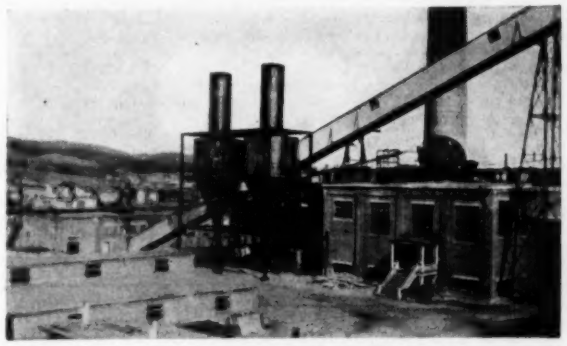
The steam plant on the Edmundston side produces 13,000,000-15,000,000 pounds of steam at 175 pounds pressure per week for process work. On the average, about 2,000,000 pounds of this steam are produced from coal, while about 12,000,000 pounds are produced from wood refuse. In winter about 50 per cent of the total steam requirements are supplied from coal.

Four of the boilers on the Edmundston side are designed to use wood refuse as fuel. Specially designed cyclone precipitators are used with these boilers. One precipitator is installed for each of two boilers. These precipitators cause cinders, soot, etc. to be discharged into the sewer rather than spreading over the countryside.

The steam plant on the Madawaska side consists of two 690 hp. and three 1,000 hp. Badenhausen boilers. Each of the boilers is built for 250 pounds working pressure and is fired with pulverized coal. The Lopulco pulverized coal system is used. This system contains two 15-ton and one 7-ton per hour Raymond pulverizers with necessary blowers, hoppers and conveyors. In conjunction with this system, a Cochrane feed water heater and deaerator is used. Two stacks, each 235-ft. high and 12-ft. in diameter at the top, are also employed. The stacks were erected by the Heine Chimney Co. The total steam produced by the boilers on the Madawaska side amounts to approximately 22,000,000 pounds at 250 pounds pressure per week.

Practically all of the electrical energy used on the Madawaska side is produced from steam generated in the boiler plant and delivered to three Westinghouse turbines. The rated capacity of each of the three turbines is 2,500, 3,400, 7,500 kw. The paper mills on the Madawaska side are using about 1,000,000 kw. hr. per week.

A large number of motors of different capacities is necessarily required to operate the equipment of the various mills. About 260 motors are used on the Edmundston side and 418 motors on the Madawaska side. Canadian Westinghouse motors constitute about 90 per cent of the total number on the Canadian side while Westinghouse motors constitute approximately 98 per cent of the number on the American side.



The cyclone precipitators of power plant, Edmundston, N. B.

Among the motors not manufactured by Canadian Westinghouse or Westinghouse Electric and Manufacturing Co. are motors manufactured by Reliance Electric and Engineering Co., General Electric, Crocker-Wheeler, Robbins Myers, Wagner Allis-Chalmers and others. It will be remembered that Reliance Electric supplied all of the motors for use on the Harland sectionalized drives for all of the paper machines on the Madawaska side with the exception of the drive on the board machine.

Miscellaneous Equipment

Located conveniently about the plant are installations of Toledo scales. These scales are used not only in the production departments but also in the laboratories.

Practically all of the piping within the various mills on the Madawaska side is copper tubing, while the piping on the Edmundston side is largely wood stave.

Wood Supply

The wood used for the production of pulp is obtained for the most part from company holdings. Provision is made at Edmundston to stack about 100,000 cords of 4-foot wood during the open season to meet the requirements of the plant during the winter months. All wood is barked at the plant.

List of Important Pumps in Bond Mill of Fraser Companies, Ltd.

Pump Duty	No.	Type	Size	Strokes per min.	R.P.M.	Type of Connection
Beater dump chest to machine chest of No. 3 machine	1	Goulds triplex plunger	12" X 12"	30		Direct connected to motor through spur gear.
Machine chest to weir	1	Goulds triplex plunger	12" X 12"	30		"
Weir to Bird screens	1	Goulds centrifugal	14" suction 12" discharge		870	Directed connected through flexible coupling.
Couch pit	1	Goulds centrifugal	8" suction 6" discharge		1,750	Direct connected.
Flat box pump on No. 3 machine	1	Nash Hytor	No. 726			Direct connected.
Suction couch	1	Nash Hytor	No. 7			Direct connected.
Suction press	1	Nash Hytor	No. 6			Direct connected.
Felt conditioner	1	Nash Hytor	No. 4			Direct connected.
Felt suction box	1	Nash Hytor	No. 2			Direct connected.
Beater dump chest to machine chest of No. 4 machine	1	Goulds triplex plunger	9" X 12"	30		Belt driven through motor.
Machine chest to weir	1	Goulds triplex plunger	9" X 12"	30		Direct connected to motor through spur gear.
Weir to Bird screens	1	Goulds centrifugal	14" suction 12" discharge		870	Direct connected.
Couch pit pump	1	Goulds centrifugal	8" suction 6" discharge		1,750	Direct connected.
Flat box pump on No. 4 machine	1	Nash Hytor flat box unit	No. 726			Direct connected
Suction couch	1	Nash Hytor	No. 7			Direct connected.
Suction press	1	Nash Hytor	No. 6			Direct connected.
Felt conditioner	1	Nash Hytor	No. 4			Direct connected.
Stock from Oliver decker to stock chest	1	Pusey & Jones triplex plunger	10" X 20"	25	1,160	Direct connected to motor through spur gear.
Stock chest to beaters	2	Goulds triplex plunger	12" X 12"	35		"
Beater dump chest to machine chest of No. 1 machine	1	Goulds centrifugal	8" suction 6" discharge		1,160	Direct connected.
Machine chest to weir	1	Pusey & Jones triplex plunger	8" X 8"	35		Belt driven from line shaft.
Weir to Bird screens	1	Centrifugal	10" suction 8" discharge			Belt driven from line shaft.
Flat box pump on No. 1 machine	1	Nash Hytor flat box unit	No. 726			Belt driven.
Suction couch	1	Nash Hytor	No. 7			Belt driven.
Suction press	1	Nash Hytor	No. 6			Belt driven.
Felt conditioner	1	Nash Hytor	No. 3			Belt driven.
Beater dump chest to machine chest of No. 2 machine	1	Goulds centrifugal	8" suction 6" discharge		1,160	Direct connected.
Machine chest to weir	1	Pusey & Jones triplex plunger	8" X 8"	35		Belt driven from line shaft.
Weir to Bird screens	1	Centrifugal	10" suction 8" discharge			Belt driven from line shaft.
Flat box pump on No. 2 machine	1	Nash Hytor flat box unit	No. 726			Belt driven.
Suction couch	1	Nash Hytor	No. 7			Belt driven.
Suction press	1	Nash Hytor	No. 6			Belt driven.
Felt conditioner	1	Nash Hytor	No. 3			Belt driven.
Water filter pumps (filtered water to storage tank)	2	Goulds centrifugal	8" suction 6" discharge		1,550	Direct connected.
Water storage tank to machines	2 (1 for No. 3 machine, 1 for No. 4 machine)	Goulds centrifugal	8" suction 6" discharge		1,550	Direct connected.

Two 166-inch Pusey & Jones fourdrinier paper machines in Madawaska mill

Water Supply

The plants on the Edmundston side receive their water from the Madawaska river, a tributary of the St. Johns river, while the plants in Madawaska obtain the necessary water from the St. Johns river. About 40 per cent of the total water requirement is pumped from the St. Johns river. Approximately 15,000,000 to 20,000,000 gallons are used per day by the sulphite and semi-sulphite mills, the groundwood plant, and the board mill on the Canadian side. It must be remembered that a large quantity of water is required to reduce the density of the pulp stock previous to pumping across the St. Johns river to the mills on the American side. The water of both the St. Johns and Madawaska rivers is soft as is shown by the following typical analysis.

Analysis of St. Johns River Water

	Grains per U. S. Gal.
Free Carbon Dioxide (CO_2)	Nil
Suspended Matters	Trace
Silica (SiO_2)	0.57
Alumina (Al_2O_3)	Trace
Ironoxide (Fe_2O_3)	Trace
Lime (CaO)	0.43
Magnesia (MgO)	Trace
Sodium oxide (Na_2O)	Nil
Sulphur Trioxide (SO_3)	0.46
Chlorine (Cl)	0.11
Combined as Follows:	
Silica (SiO_2)	0.57
Alumina (Al_2O_3)	Trace
Ironoxide (Fe_2O_3)	Trace
Sodium Chloride (NaCl)	Nil
Sodium Sulphate (Na_2SO_4)	Nil
Sodium Carbonate (Na_2CO_3)	Nil
Magnesium Chloride ($MgCl_2$)	Trace
Magnesium Sulphate ($MgSO_4$)	Trace
Magnesium Carb. ($MgCO_3$)	Trace
Calcium Chloride ($CaCl_2$)	0.22
Calcium Sulphate ($CaSO_4$)	0.78
Calcium Carbonate ($CaCO_3$)	Nil
Total scale forming solids	1.57
Total foaming solids	Nil
Total soluble organic matters	0.74
Total residue on Evaporation	2.31%

Analysis of Madawaska River Water

	Raw Water Gr. pr. Gal.
Calcium Carbonate	2.74
Calcium Sulphate	.47
Magnesium Carbonate	.06
Magnesium Chloride	.23
Magnesium Hydrate Silica	.23
Iron Oxide & Alumina	.06
Sodium Carbonate	..
Sod. & Pot. Sulphate	..
Sodium Chloride	.06
Sodium Hydrate	..
Volatile & Organic	.58
Total Solids by evap.	4.43
Suspended Matter	.06
Free Carbon Dioxide	.23
Free Sulphuric Acid	..

Technical Control and Research

During all of the developments pertaining to the increased output of pulp and paper, the technical staff has been constantly at work along the lines of plant control and research. At the present time about 35 men are employed for technical control and research work. There are seven control stations in the mills at Edmundston and Madawaska in addition to two well equipped laboratories, one on each side of the river, in which these men function. Each station is equipped with such testing apparatus as would commonly be used for control work of the department in which it is functioning. The laboratories are equipped for control work as well as research. Each of the two laboratories is equipped with a constant humidity room. Such a room maintained at 65 per cent relative humidity and a temperature of 70 deg. Fahr., to permit all papers to be tested under the same conditions of temperature and humidity.

Fraser mill, Madawaska, Me.—Dry end section of Harland drive on 202" Pusey & Jones paper machine. Speed range 200 to 800 ft. per minute. Equipped with Reliance electric motors

Westinghouse turbo-generator set in Madawaska mill

The laboratory on the Madawaska side is housed in the basement of the new administrative building which was erected during the present year. The quarters are pleasant and are well arranged for conducting the work of the department. Approximate estimates place the floor space given over to the laboratories and control stations as 5,000 to 6,000 square feet.

Research work has been conducted upon such problems as —Strength Testing of Pulp, Methods for the Determination of the Degree of Delignification of Sulphite Pulp, Bleach Consumption, Proportion of Sulphite and Groundwood in Sulphite—Groundwood sheet, Alpha Cellulose, Cooking, etc.

Personnel

A description of the activities of this rapidly growing and unusual pulp and papermaking enterprise would not be complete without a list of those who have been responsible for guiding the course of its development.

The executive personnel of the Fraser Companies, Ltd. with main office at Edmundston, N. B., includes Archibald Fraser, president and general manager; Donald Fraser, vice president; William Matheson, secretary and asst. general manager; L. M. Sherwood, treasurer; C. S. Henderson and W. W. Duncan, asst. treasurer; and A. W. Brebner and D. A. Fraser, asst. secretary.

The Fraser Paper Ltd., subsidiary to the Fraser Companies, Ltd., with main office at Madawaska, Me., includes in its personnel of administrative executives—Archibald Fraser, president; Donald Fraser, vice president; F. P. Lyden, general manager; William Matheson, secretary; L. M. Sherwood, treasurer; D. A. Fraser and C. S. Henderson, asst. treasurers; and C. S. Henderson, asst. secretary.

Novel Method or Splicing Cores

The paper industry has made a decisive step forward in the elimination of waste and the resultant economy, by the development of a novel "Core-splice."

M. P. Fitzpatrick, boss finisher of The Port Alfred Pulp & Paper Corporation, Port Alfred, P.Q., Canada, observed and was impressed by the large and continual waste in the various mills in which he has worked in the handling of cores. Every mill has some obsolete or damaged cores on hand—and some of them a great many—that have been prepared and were in use for certain size rolls for certain customers, but with changing conditions in the press rooms and the changing of customers, paper mills have found themselves with many thousand feet of cores, in sizes impossible to use with a resultant tie-up of capital and valuable storage space.

With the present tendency to distribute orders to get the most direct and rapid delivery to the customer, there has been some readjustment of accounts, and this also has left cores in stock which might stay there for years but which "Core-splice" releases for immediate use in any size roll.

Another source of waste: cores damaged, caused by flattening through the dropping of a roll, or other injury to the core in transit; with Core-splice, the damaged or flattened part can be sawed out, a good piece of core put in to replace it, and thus cores whose usefulness ended usually in ten or twelve trips, can be used indefinitely.

To cut a full size core down to a half size when only a few inches of damage was done is a very serious waste, but "cutting a core longer" is quite a different problem, and of course the only solution was to splice two pieces so that the resulting core would be straight, sound and true, and equally as strong as a corresponding piece of new core.

Fitzpatrick's success in developing a method for splicing cores, without the addition of any foreign material, has been in actual service long enough to demonstrate without question the success of his process.

Patents have been applied for Canada—United States and abroad.

How It Is Done

Let us assume we have on hand several thousands of cores that have been made over a certain period of time for a customer taking 68-inch rolls, and new contracts discontinue that size and call for sizes 69, 70, 71, 72 or 73-inch. This situation surely gives the boss finisher something to worry over, for immediately he has tied up thousands of dollars in cores he cannot use and must either manufacture or buy new cores for this new business, which in turn may change again to different sizes, with a further tie-up of cores and capital. It is a never ending problem, and there are mills that actually cleared out to employees, free of charge, thousands of obsolete size cores for firewood, in order to gain storage space, irrespective of the fact that they represented an investment of practically one cent per inch.

With Fitzpatrick's method, a 68-inch core can be taken and with any 10-inch piece of core, a perfectly good 72-inch core can be made at a cost of not quite one cent.

With the tools designed, a bevel is reamed out on the inside of one piece and with the same tool, a bevel tip is cut with a square shoulder on the other piece. The male and female ends make a perfect joint, no foreign material having been introduced. In putting the pieces together, a small amount of adhesive makes the joint permanent, and the core has been found actually strongest at the spliced joint. Furthermore, the resulting new size made by the splice is perfectly round and straight and will run on the winder and the press with the same trueness as a new core.

Spliced cores that have been returned to the mill as many as four or five times have been found in excellent condition. Splicing threfore not only saves the tying up of a large amount of capital in obsolete and useless size cores, but it makes a core out of any two old pieces as good as the original, and an inch of waste or an obsolete core in a paper mill basement can be made a thing of the past.

M. P. Fitzpatrick has appointed as selling agent in Canada, The United States and abroad The Pulp & Paper Mill Supply Co., of Chicoutimi, P.Q., Canada.

Human Slips Cause Most Plant Accidents

"Butter fingers" and slippery feet are the chief causes of accidents in industrial plants, it is disclosed by an investigation just completed under the direction of Edward O. Allard, manager of the Safety Engineering and Inspection Department of the American Surety Company and its affiliated company, the New York Casualty Co.

Mr. Allard explained that a check of more than 7,700 accidents, both fatal and otherwise occurring in factories and industrial works from non-mechanical causes showed that the largest number attributed to a single cause—33.5 per cent of the total—were the result of manual handling of materials. Next in importance, it was found, were falls resulting from carelessness or other cause.

Glassware plants recorded the largest percentage of accidents due to the manual handling of materials—54 per cent —machine shops came second with 46 per cent. In paper and printing plants, taken jointly, 39 per cent of the accidents in the non-mechanical category were the outcome of slips while handling objects and materials.

More accidents from persons falling occurred in woolen, cotton and silk mills than in establishments carrying on heavier forms of manufacturing. In some cases, workers fell against looms, beaters and other moving machinery.

"Altogether," said Mr. Allard, "nearly 1,000 fatal and non-fatal cases were analyzed, and it was surprising to find that more than twice as many accidents were due to non-mechanical causes as were chargeable to machinery in operation, the former total being more than 7,700 as against less than 3,200.

"These figures emphasize graphically the importance of the human factor in the situation. Far-sighted manufacturers have installed safety devices on moving belts and machinery, and have safeguarded other points of hazard, because accident prevention is good business practice from every standpoint, yet it is evident that employees continue to suffer injuries, many of which are fatal, because they do not exercise sufficient care in performing such ordinary actions as walking and carrying.

"This record suggests a great need for the further education of factory workers to be more careful by talks, placards, motion pictures and every other means of driving home the doctrine of safety."

Paper Investigations by U. S. Bureau of Standards

Tracing Paper

A tracing paper developed commercially, which is unique in that its transparency is secured in the papermaking process and not by after-treatments, was recently tested. The paper is made from rag fibers. It compared favorably with tracing cloth in strength and while considerably less transparent than the latter, it apparently had sufficient transparency for many purposes.

Absorbency of Paper Towels

In view of the more or less rapid loss of absorbency found in some paper towels, an investigation has been initiated to find if possible the cause of this form of deterioration and means of predicting the rate of loss. Representative samples of the various kinds of towels are being secured for test purposes. These will be tested at regular intervals and the results of natural aging will be compared with those obtained by accelerated aging.

Further Tests on Stability of Papers

Tests for alpha cellulose content were made on a series of eleven bond and ledger papers of various grades and fiber compositions. The papers were all obtained from the Government Printing Office and were representative of deliveries. The tests were repeated on the samples after they had been subjected to a heat treatment for seventy-two hours at 100 deg. C. The decrease caused by heating—expressed as decrease in alpha cellulose in per cent of initial—appears to bear an important relationship to the physical stability of the papers.

As has been indicated by previous work, there is excellent correlation between the decrease in alpha cellulose on heating, and the retention of tearing strength on heating.

The tearing strength drops off very gradually corresponding to decreases in alpha cellulose up to about 4 per cent, after which the loss in tear becomes increasingly greater. For example, a decrease in alpha cellulose of 1 per cent corresponds to a retention of tearing strength of 91 per cent of the initial. Decreases in alpha cellulose of 5 and 8 per cent correspond to tearing strength retentions of 84 and 41 per cent respectively.

Preservation of Publications

Inspections of the following libraries have been made: New York Public Library, University of Pennsylvania (3), Franklin Institute, Philadelphia Academy of Natural Science, Law Library of the Philadelphia Law Association and the Pennsylvania State Bar Association. Much data, valuable from the standpoint of comparative study, has been collected, and some samples of old and deteriorated books and paper for microscopical study has been loaned to the bureau by the University of Pennsylvania Library.

The air in Philadelphia was formerly badly polluted by industrial fumes, more especially sulfur dioxide much as was the case with localities surrounding such large smelters as Great Falls and Anaconda, Mont.; Garfield, Utah.; and Selby, Calif. The same effect observed in these localities has been noted on the vegetation of the University Botanical Gardens, but to a much lesser degree. The results of a combined investigation by the Atlantic Refining Co. and the University Botany Department showed a range in sulfur dioxide of 0.2 to 1.8 parts per million parts of air—1:30,000 is known to be fatal to some forms of vegetation. As a result of this investigation much of the difficulty in Philadelphia has been eliminated.

This serves to emphasize the dangerously corrosive effects of acidic gases in the air, operating in conjunction with moisture. The advantage of scrubbing of air by alkaline washers before it is supplied to library stackrooms is therefore obvious. Control of other conditions—light, dust, humidity and temperature, of course follow logically.

Recent Paper Publications

Reprints of Research Papers No's. 85 (5 cents) and 107 (15 cents), published in the bureau Journal of Research, are now available for purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C. Research Paper No. 85, "A Study of Sheating Papers," by F. T. Carson and F. V. Worthington, gives the results of tests of the various types of papers used for this purpose, made to assist the National Lumber Manufacturers' Association in their standardization of building material. Research Paper No. 107, "A Study of Purified Wood Fibers as a Paper-Making Material," by R. H. Rasch, reports the results so far obtained in comparative laboratory tests of highly purified wood fibers and the other common papermaking fibers, in respect to the relative quality of papers made from them.

"A Historical Sketch of the U. S. Bureau of Standards Paper Mill," by B. W. Scribner, was published in Superior Facts (Paper Makers Chemical Corp., Holyoke, Mass.). This is a brief history of the mill from its establishment in 1910, to the present year.

Minton Vacuum Dryer Corporation

An announcement of great importance to the pulp and paper industry has just been released by the Minton Vacuum Dryer Corporation of Greenwich, Conn., containing information to the effect that the Bagley & Sewall Company, The Beloit Iron Works, The Black-Clawson Company, The Pusey & Jones Corporation, and Rice, Barton & Fales, Inc., have become associated with the Minton Vacuum Dryer Corporation and acquired licenses under the Minton patents to build and sell Minton vacuum dryers in the United States.

The invention of the Minton vacuum dryer dates back to 1914 when the first models were experimented with. From time to time, Minton patents have been issued, until at the present time there are more than thirty-two United States patents issued covering the Minton vacuum dryer.

In 1926 the Minton Vacuum Dryer Corporation was formed. Up to the present time, there is in operation or under construction, a total of eleven Minton vacuum dryers for the drying of special board, newsprint, bleached sulphite pulp, bleached kraft pulp, pulp for rayon, and 100 per cent rag stock ledger papers. Among the purchasers of the Minton vacuum dryer are the Bakelite Corporation, Price Bros. & Co., Ltd., the Brown Company, the Olympic Forest Products Company, and the Byron Weston Company.

The various installations of vacuum dryers made in the last two years have more than proved all the claims made for the vacuum drying process. These installations cover small and large machines of both slow and high speed type. Two vacuum dryers, 234 inches wide, have been supplied to Price Brothers & Co., Limited for their mill at Riverbend, P. Q., Canada and have operated at speeds in excess of 1,000 ft. per minute, making standard newsprint paper at a greatly reduced manufacturing cost. A recent installation drying sulphate pulp has proven that pulp can be dried down to a very low moisture content without reducing the initial strength of the pulp, thus permitting pulp of low moisture content to be shipped with a great reduction in freight rate.

The association of the five machine builders mentioned above with the Minton Vacuum Dryer Corporation will make possible economies in the design and building of the dryer, and because of the close co-operation of the Minton Vacuum Dryer Corporation with each of the machine builders, sales costs will be materially reduced.

An association of this kind has been found advisable because of the increasing use by the trade of vacuum dryers and the necessity of rapid and economical manufacturing and distribution of the vacuum dryer throughout the paper industry.

The Chase Bag Co., New York, has awarded a contract to the Austin Co. of Cleveland, industrial architects and builders, for the design and construction of a new $100,000 manufacturing unit at Goshen, Ind. The new unit will be 120 by 332 feet and its construction will require 100 tons of structural steel. The present building of the bag company at Goshen will be used for warehouse purposes upon completion of the new unit.

Profits by Sorting and Cleaning

Consolidated Paper Co. Installs Equipment for Mixed Papers That Reduces Production Costs and Maintains Quality

THE quality of the final product of any manufacturing process is frequently sacrificed through a reduction in production costs. Production costs are often decreased to the detriment of quality. Such a situation in the present overcompetition of many lines of industry has caused active thought to be given to both production and quality. It is assumed, all other factors being equal, that a quantity product manufactured at a certain figure can be sold more profitably than another product of the same quality manufactured at greater expense.

Several years ago the Consolidated Paper Co. of Monroe, Mich., one of the largest producers and converters of paperboard in the world, began to study the problem of raw material handling at its south side plant, where A. H. Lockwood is manager and J. H. Meloan is personnel manager. This study has resolved itself into the installation of a novel system within the plant for unloading, sorting and cleaning of the mixed papers used in the process. In brief, the system includes conveying equipment designed to handle all of the mixed papers entering the plant, provision for sorting these papers into the several grades as used in the process, and equipment for cleaning these papers previous to their entrance into process equipment.

The development of this system of material handling necessitated the erection of a new warehouse for paper storage, and the conversion of an old warehouse into a department for sorting and cleaning.

The new warehouse, divided into two bays, is of steel and sheet iron construction. It is 600 ft. long, 120 ft. wide, and 55 ft. high to a point under the cranes used for handling the bales of mixed papers.

The crane equipment includes two Cleveland units—one for each bay. Each crane has a span of 60 ft. and is designed to pile to a height of approximately 50 ft. The capacity of each unit is rated at one ton. Either of the two cranes can travel the entire length of the warehouse.

In addition to the crane equipment within the warehouse are two parallel tracks, two horizontal conveyors, and scale equipment. The tracks permit twenty-two cars to be "spotted" at one time within the building. Parallel to each of the two tracks is a corresponding horizontal conveyor elevated at the discharge end to raise the mixed papers to the sorting and dusting room. Above each of the two horizontal conveyors are located movable scales for weighing all bales of paper as removed from the cars. Two scales can be located in front of any car to expedite weighing of the scales during the unloading operation. Provision has also been made in the layout of the warehouse to permit unloading of trucks at one end of the building. In this way, it is possible to utilize both rail and auto truck as means of delivering bales of paper to the warehouse.

This warehouse has a storage capacity of 11,000 to 12,000 tons. Such a capacity permits the plant to purchase when market conditions are right.

The equipment of the sorting and dusting operations includes a series of sorting conveyors and tables upon which the mixed papers are sorted into three grades—soft, hard and news. Much foreign material or junk is also removed at this point. This junk includes such materials as strings, rags, excelsior, and other items that might possibly be found within a bale of paper. The number of these items is surprisingly large. Materials such as strings, rags, and excelsior which have a monetary value are segregated and sold.

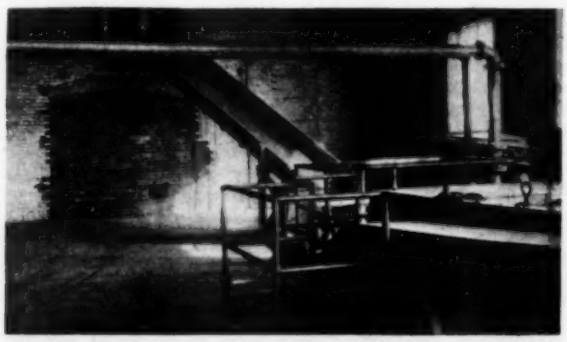
The sorting tables are of wood construction and are designed to permit the graded paper to move by gravity to its respective conveyor for elevation to the dusting equipment.

The dusting equipment includes one perforated metal plate cylindrical drum for each of the three grades of paper stock. Each drum, 32 feet long and 9 feet in diameter, is supported on three sets of trunnions and is driven slowly through a girth gear. The perforations in the metal plates forming the sheels of the drums are approximately 1½-in. in diameter. These plates are attached to the framework of the drums in comparatively small sections to permit easy replacement whenever necessary. Within each drum are located specially designed lifting irons which aid not only in tumbling the paper and thus freeing the dust and dirt from it, but also in preparing the paper for the beaters by tearing and crumpling it. The three dusters are hooded to prevent the dust removed from the papers from being discharged into the room. Each of these hoods is to be equipped with an exhaust system to even improve the operating conditions.

The dusters not only remove dust and dirt particles, but also such materials as paper clips, metal bottle caps, cinders, nails, bolts, wire, etc. These materials drop by gravity to V-shaped metal hoppers, one for each duster, with openings at the bottom which discharge upon a belt conveyor. The conveyor, therefore, delivers such material as is removed by the dusters to the junk pile.

The cleaned paper working its way through its respective duster, drops by gravity upon a horizontal conveyor that carries it to a wooden chute where it drops by gravity into its respective breaker beater. The breaker beater equipment includes two Shartle beaters of about 100 tons per day capacity each, and one Dilts beater with a capacity of approximately 200 tons per day. As is customary in board mill operation, the stock from the breaker beaters is discharged by gravity into stock chests from which it is de-

New paper stock warehouse showing baled paper in storage, conveyor, and one track for unloading cars



Discharge into one of the breaker beaters. Note discharge end of belt conveyor near top of chute

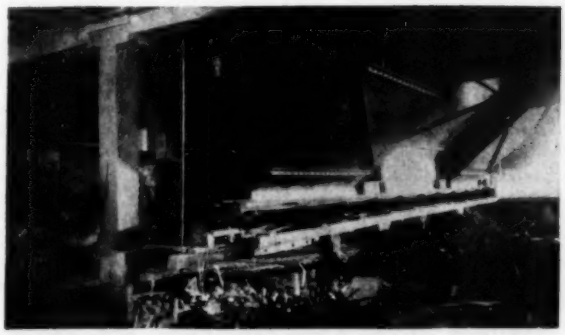
Conveyor delivering mixed papers to sorting room

The sorting tables and conveyors feeding dusters

livered to additional beaters or to the jordans prior to its fabrication on the paper machines.

Less than 100 hp. is required as the total connected load for operating the conveyors and dusting equipment of this unloading, sorting, and dusting system that is capable of easily handling at least 500 tons of mixed papers per day.

Among the items of auxiliary equipment might be mentioned two Reeves drives and Falk speed reducers for the



Three dirt hoppers and conveyor

Discharge end of dusters with transfer conveyors

horizontal mixed paper conveyors, and Cleveland Worm speed reducers for the drives of the cylindrical dusters. One of the mixed paper horizontal conveyors has been designed to operate with a variation in travel from 2½-ft. to 7½-ft. per minute, while the second conveyor may operate from 5-ft. to 15-ft. per minute. This variation in speed is to permit a determination of the most practical speed for operation. Westinghouse motors are employed throughout the system for all power applications, and Imperial canvas belting is used for all conveyor belt.

Although the complete system of unloading, sorting, and dusting of mixed papers has been in use for only a few weeks, the results have been most satisfying. The consumption of kraft for liner, has been decreased and the quality of the board maintained. The power consumption for process requirement has been lowered. The labor cost has been cut considerably. These savings, it was estimated, will pay for the complete plant over a period of approximately two years.

The Webster Manufacturing Co., of Chicago, was the designing and contracting engineer for the complete paper handling system. Forester, Wernert, Taylor, of Toledo, Ohio, were the engineers responsible for the design of the new warehouse building, while Whitehead and Kales of Detroit were the erectors.

Present Plant Changes

Plans now include the erection of three beater-like concrete stock chests, each with a capacity of about 75 tons of paper stock at five per cent density. One of three chests is now installed. It is aproximately 200 ft. long and 32 ft. wide, with a stock height of eleven feet. It is equipped with a midfeather which gives to the entire chest a resemblance of a huge concrete beater tub. Two Hill Clutch vertical agitators have been installed within the chest to circulate the stock. This installation has been made with the expectation of decreasing beater time, and power costs as well as effecting other savings in the manufacturing process.

Another important project that is now nearly completed is the creation of a new water system for the entire plant. This system includes a canal 60-ft. wide by 12-ft. deep from Lake Erie to a pumping plant—a distance of about two miles—a pumping plant with a total capacity of about 30,000,000 gallons per day to supply the River Raisin Paper Co. and the plants of the Consolidated Paper Co., and pipe lines to connect the pump house with the various mills. The River Raisin Pipe line is 36-in. in diameter and is about one-half mile in length. This pipe is of asphalt coated steel. The Consolidated system includes two 24-in. cast iron mains from the pump house. One main is for the north side plant, while the second is for the south side unit. Both lines include about 1½ miles of piping. It is expected that the new water system will be placed in operation in about three months.

Westinghouse Exhibit Presented to Ford

Priceless relics which money could not buy, gathered from all parts of the country, comprised one of the most complete exhibits of pioneer electrical inventions in existence. This exhibit was displayed by the Westinghouse Electric and Manufacturing Company at its East Pittsburgh Works, November 19.

During his visit to the exhibit, the entire collection was presented to Henry Ford by the Westinghouse company. Mr. Ford will place the exhibit in the Ford Museum, a permanent industrial exhibit founded by him at Dearborn, Michigan.

Dan M. Wadsworth, Bogalusa Paper Company, Bogalusa, La., has been accepted by the Joint Committee on Approved Pulp Testing Chemists for the Paper Industry of the United States, as a mill pulping chemist and has been so registered.

Power and Mechanical Engineering Show

Great Showing of New Inventions in Machinery and Equipment, Including Boiler Plants and Appliances Used in All Branches of Engineering, at Eighth Annual Exposition

THE annual meetings of several national engineering societies took place in New York during the week of December 2—7. These included the fiftieth annual convention of the American Society of Mechanical Engineers, the twenty-fifth annual meeting of the American Society of Refrigerating Engineers and the Power Transmission Association, held respectively in the Engineering Societies Building, the Hotel Pennsylvania and the Hotel Commodore, all within convenient reaching distance of the Grand Central Palace where the Eighth Annual Exposition of Power and Mechanical Engineering was staged and attracted the interested attention of 2,000 or more mechanical experts representing the membership of the societies in addition to executives and plant foremen from establishments within the metropolitan district. The many exhibits of new inventions, power machines, precision instruments, new metals, important chemicals, heating plants and power developments combined to make the Power Show one of unusual attractiveness and value to visiting executives and engineers from all parts of the United States, Canada, and foreign countries who were registered as in attendance.

The exposition occupied three floors of the Grand Central Palace. Quite a few of the exhibits consisted of machinery, equipment and materials that find use and application in pulp and paper mill work. New protective coating for paper mill machinery and equipment which are exposed to moisture or to acid fumes were on exhibition in the form of heat and acid resisting paints. As these paints of secret composition are available in different colors their use has been suggested in carrying out the A.S.M.E. system of identifying piping.

A new metal, named durimet, a steel that resists sulphuric acid and will not rust or become otherwise tarnished, and is capable of taking a high polish, was one of the novelties exhibited. There were other novel exhibits relating to machinery or equipment for the generation, distribution or utilization of power, besides new instruments for indication or control of pressure, temperature, volume, time, or speed; and electric gauges, temperature controls and recorders for pressure or liquid level, either by air or electricity.

While some of the exhibits of leading engineering firms pointed to an extraordinary expansion of industry demanding a corresponding increase of power, there were at the same time numerous indications of a lessened use of coal as a source of power, this being almost proportionate to the increased power development. The explanation is that inventive genius has made it possible for the same coal to produce today twice as much power as heretofore.

In the subjoined paragraphs an attempt is made to enumerate and describe the exhibits having a more or less direct appeal for the manufacturers of pulp and paper.

Details of Exhibits

Alexander Bros. Inc., Philadelphia, made a showing of Tentacular Transmission Belting, several typical short center drives being arranged with high pulley ratios.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., as manufacturers of power machinery exhibited hydraulic turbines for all sizes and heads, pumping engines, centrifugal and plunger pumping units and Texrope drives.

American Blower Corp., Detroit, Mich., had an impressive display of unit heaters, the Universal, the improved Sirocco and the new Venturafin unit heaters being shown; literature was available pertaining to various forms of heating, ventilating and air conditioning equipment.

American Pipe Bending Mch. Co., Inc., Boston, Mass., exhibited their new type 2-in. power operated cold pipe bender for bending double thick pipe, and a new type tubing bender to bend thin gauge steel, brass and copper tubing up to 1¼-in. o.d. to radius of about 2 to 1 or twice the diameter.

American Radiator Co., New York, who manufacture industrial automatic controlling devices, showed a new Mercoid electric instrument for control of temperature, pressure, vacuum and liquid level, besides other equipment, as Arco motor valves and Arco solenoid valves.

American Shaffer & Budenberg Corp., Brooklyn, N. Y., occupied space with Consolidated Ashcroft Hancock Company of which it is now a division where exhibits and literature of the well-known American gauges and recording instruments were available.

Ames Pump Co. Inc., New York, exhibited pumping apparatus in sections to describe and illustrate their vacuum pump.

Armstrong Cork & Insulation Co., Lancaster, Pa., displayed insulating materials that find use in a number of industries, including the pulp and paper industry. The exhibit was an interesting one, set off to advantage with specimens of Armstrong's and Nonpareil insulating brick, Armstrong's cork board insulation and Armstrong's cork covering Nonpareil high pressure covering and blocks.

Armstrong Machine Works, Three Rivers, Mich., showed a glass model of the Armstrong steam trap operating under steam pressure as well as a complete line of steam traps.

Babcock & Wilcox Co., New York, had an unusually interesting exhibit, comprising a sectional model of a Babcock & Wilcox crossdrum boiler complete with superheater, air heater, economizer and Bailey furnace walls, equipped with a Westinghouse Link-Grate underfeed stoker. A display was also made of Babcock & Wilcox refractory products, including cements and plastics, as well as seamless tubular products in Toncan iron and Enduro.

E. B. Badger & Sons Co., Boston, Mass., made the usual display of Badger self-equalizing expansion joints for high-pressure service, and the Badger non-clog nozzle for cooling water by spraying was also shown.

Bailey Meter Co., Cleveland, Ohio, featured a long distance type Selsyn operated liquid level recorder and indicator in operation, and the operation of solenoid operated clutches was indicated in a sectional view of a Bailey Meter control drive. A large display of photographs, diagrams and chart records accompanied the display, these being taken from actual installations of Bailey Meter control in different industrial plants and central stations. The new products exhibited included the Bailey Selsyn operated devices and the Bailey thermo hydraulic feed water regulators, pump governors and excess pressure regulators, besides Bailey fluid meters of both the mechanically and electrically operated types for the measurement of steam, water, gas and other fluids.

Ballwood Company, New York, in conjunction with the Midwest Piping & Supply Company, St. Louis, exhibited specimens of high pressure piping of their special make.

Barco Mfg. Co., Chicago, featured Barco lubricated plug valves, the double gland arrangement of which allows the

packing to be renewed if necessary under pressure with no danger of the valve going out. There were also electrically operated models and cut-open sections of valves and joints on view to illustrate their construction.

Bernitz Furnace Appliance Co., Boston, exhibited the Bernitz S-100 type of "Carbofrax" ventilated blocks for boiler furnaces, which are said to form linings that will stand up without clinkers and slag trouble under the most exacting stoker conditions. In the display the blocks were arranged in such a way as to show the methods of ventilation used in the Bernitz air-cooled construction. A portion of the Bernitz Co. Nygaard type of "Carbofrax" block used for water walls was also on view and attracted considerable attention.

H. Belfield Co., Philadelphia, had a display of valves, brass and iron cocks, and brass screwed and flanged fittings of all kinds.

Bethlehem Steel Co., Bethlehem, Pa., displayed the Bethlehem pulverizer for the delivery of uniformly fine fuel and the Bethlehem-Dahl oil burning system, catalogues and other literature descriptive of these and other specialties of the company being also exhibited.

Botfield Refractories Co., Philadelphia, made an interesting exhibition of refractory materials, including adamant fire brick cement, Adachrome fines and aggregate, Adapatch, and the Adamant gun.

S. F. Bowser & Co., Fort Wayne, Ind., as specialists in lubrication service, showed their standard line of lubricators, filters and other specialties pertaining to lubricating systems.

Bristol Co., Waterbury, Conn., exhibited a representative lineup of Bristol's recording, indicating and control instruments for power plant use. These included recorders for pressure, temperature, liquid level, voltage, wattage and amperage, an electric pyrometer was featured, besides automatic temperature control with motor-operated valves, as well as air operated control for temperature and pressure.

Brown Instrument Co., Philadelphia, had a display in the form of an instrument board divided into six panels on which were grouped resistance thermometers for low temperatures; pyrometers for high temperatures; distant dial (remote type) gauges for pressure and liquid level; flowmeters for steam, water, air, and oil; recording gauges for pressures and low temperatures; CO_2 recorders. There was also a supplementary display of special apparatus and mechanisms. The distant dial gauges attracted special interest being used where instruments are required to record or indicate pressures and liquid levels at remote points, in some cases, a distance of thirty miles.

Cleveland Worm & Gear Co., Cleveland, Ohio, exhibited worm gear speed reduction units with motor drives, which are manufactured in capacities ranging from ½ to 150 hp. and in a great variety of speed reduction ratios. Some types are used successfully in paper machine operation, the Cleveland worm gear section drive being highly appreciated by many paper manufacturers.

Clipper Belt Lacer Co., Grand Rapids, Mich., showed a complete line of clipper belt lacers, belt fasteners, belt cutters with safety features, and connecting pins. As an advertising novelty an electrically operated clipper ship drew the interested attention of visitors.

Cochrane Corp., Philadelphia, showed a number of novelties and improvements in Cochrane appliances, including an improved Multitort back pressure valve; a self contained Deaerator for preventing corrosion and resulting red water in hot water service and heating system. Cut-off models of apparatus were shown and added greatly to the value of the display which included a V-notch weir recorder and an acid feeder, besides a steam purifier.

W. B. Connor Co., Inc., New York, exhibited the Connor pumping and direct return traps, cross sectional samples of the mechanism being shown.

Consolidated Ashcroft Hancock Co., Bridgeport, Conn., made a comprehensive exhibit of valves, recording thermometers and recording gauges. A power control valve, pop safety and relief valve, as well as forged steel Hancock valves, were features of the display.

Crane Company, Chicago, Ill., showed some new designs of cast steel gate valves for steam, working from pressures of 400 to 1,500 lb., one of the valves being operated by a compressed air motor. A valve cylinder was seen capable of being operated by the use of either oil or water, and there was an automatic stop check valve with toggle device for 1,500 lb. pressure and a temperature of 750 deg. Fahr.; several pieces of forged steel valves were also exhibited.

Cutler-Hammer, Inc., Milwaukee, Wis., exhibited new developments in elevator control and accessories, besides some outstanding novelties in motor control, including Across-The-Line automatic starters, motor operated valve control, and control apparatus for electric heating units, wiring devices, etc. Their new bulletin, 9,586 "AAA," was among the literature distributed at the booth. It will be recalled that Cutler-Hammer, Inc., features the Harland electrically interlocked paper machine drive, of which a special booklet entitled "Keeping Paper on the Reel" is available.

DeBothezat Impeller Co., Inc., New York, made an exhibit of disk pressure fans of all sizes from 8-inches to 8-feet. A disk fan of Dr. G. DeBothezat's special design was exhibited, which demonstrated the possibility of obtaining non-overloading characteristics and high static pressure, combined with efficiency.

Julian D'Este Co., Boston, Mass., exhibited pressure reducing valves and steam drainage controls in the Curtis Engineering Specialties line; sectioned forms and mounted specimens of actual valve and traps were shown. An exhibit was also made of the d'Este temperature regulator, and the new Curtis type T return trap, as well as the packless excess pump regulator.

Detroit Stoker Co., Detroit, Mich., showed, in addition to a complete line of stoker equipment, large size photographs and literature describing the Detroit single retort and unistoker. The operation of the Detroit triple retort underfeed stoker and Detroit junior stoker was demonstrated by moving parts. There were also photographs and literature relating to the Detroit double retort and industrial stokers.

Joseph Dixon Crucible Co., Jersey City, N. J., made an interesting display of graphite products, such as flake lubricating graphite, graphite greases, belt dressing, graphite seal, graphite pipe joint compound and other miscellaneous graphite products.

Dodge Mfg. Corp., Mishawaka, Ind., as manufacturers of power transmission equipment, made a display of bearings, bushings, friction clutches, shaft collars, countershafts, shaft couplings, fly wheels, shaft hangers, gears, pillow blocks and similar equipment, as well as oil engines, conveyors and special machinery.

C. A. Dunham Co., Chicago, made a display of operating units of the Dunham differential vacuum heating system. Also vacuum pump and control equipment.

Charles Engelhard, Inc., Newark, N. J., had a small furnace in operation at their booth with the pyrometers and a special thermocouple to give an average temperature reading. By means of an electric resistance thermometer inserted in the furnace relative accuracies were obtained and a check on the pyrometer made.

Erie City Iron Works, Erie, Pa., featured the Erie City Unitype Pulverizer and other equipment, consisting of Erie City two-drum heat boiler and an Erie City three-drum boiler fired by various methods. There was also shown an installation of the Erie City Vortex as applied to H.R.T. boiler and Erie City Steel Heating Boiler.

Fairbanks Co., New York, made an exhibit of bronze and iron valves, globe, angle, gate and check pattern. The Fairbanks Sphero valve was prominently displayed, as also Dart unions, fittings and Dart flanges.

Falk Corporation, Milwaukee, Wis., showed their line of speed reducers, and an animated display of a pumping outfit was used to show Falk flexible couplings in operation. This device is so contrived as to draw the coupling considerably out of alignment and also affords an opportunity of demonstrating the coupling's ability to allow free end float.

Foster Engineering Company, Newark, N. J., showed valves cut in section to reveal the internal part, and there was a general display made of pressure regulators, pump governors, boiler stock valves, etc., of standard and also of steel construction to withstand extreme pressure and temperature. A Foster Sight Flow Box was also exhibited.

Foxboro Co., Foxboro, Mass., featured the operation of the Foxboro steam flowmeter by means of a large model of this instrument. There was also a typical Foxboro power plant installation and recording and indicating gauges, thermometers, meters and controllers.

Fuller-Lehigh Co., Fullerton, Pa., occupied a large and prominent space with a model of a Bailey water-cooled, slag-tap furnace which showed details of its construction, including the tube, block, tie-row and air-cooled floor details, also the method used to seal the furnace against air infiltration. Some fifty Fuller-Lehigh installations of pulverized coal equipment and water-cooled furnace walls were shown on a displayer, pertinent facts concerning the installation being given on display cards. The grinding elements of the new Fuller-Lehigh, type B table mill were exhibited for the first time.

General Electric Company, Schenectady, N. Y., made a display of great interest, as is customary with this firm. A new piece of apparatus in the form of an electric gauge designed for measuring the bore of a crank-pin hole attracted considerable attention. Synchronous motors were also exhibited, as well as switch gear and a photoelectrically controlled door.

Girtanner Engineering Corp., New York, made a display of ash handling equipment, covering pipe conveying, including pneumatic, hydraulic, steam vacuum, steam jet, baffle wall conveyors, ash storage tanks, ash pit and furnace doors.

Grinnell Co., Inc., Providence, R. I., occupied extensive quarters on the mezzanine floor. The arrangement and decorations of the space, which covered that of four ordinary booths, were striking and attractive, electric light bulbs within opaque glass shades bearing an advertisement of the company being arranged in a row on the front and sides of the enclosure. It was the most distinctive exhibit on the floor. Among the apparatus shown were Thermoliers, Grinnell's recently developed and widely successful unit heater; Grinnell adjustable hangers; Grinnell power piping hangers; and Grinnell Triple XXX line of piping for super power work.

Hagan Corp., Pittsburgh, Pa., exhibited apparatus and distributed descriptive literature pertaining to the prevention of scale and corrosion in boilers. The company specializes in combustion control, steam purifiers, steam separators and boiler water conditioning.

Harbison-Walker Refractories Co., Pittsburgh, Pa., made a general display of refractories, including fire clay, silica, chrome and magnesite; also fire-bond high-temperature cement and thermolith, also a high-temperature cement.

Hartzell Propeller Co., Piqua, Ohio, showed a line of fans and blowers of the Charavay exhaust ventilating type, as well as one of their theatre fans and other types, such as multiblade fans, two-propellor fans, extension shaft fans, blowers, and Kool Blast fans.

E. F. Houghton & Co., Philadelphia, Pa., afforded dynamic evidence of the strength of Vim belting, and there was always a crowd in attendance at the booth to see and hear the demonstration at a transmission stand where the slippage of certain leather belting and rubber belting was compared with non-slipping Vim. Another feature of the exhibit was a Houghtometer for similar testing.

Howell Electric Motors Co., Howell, Mich., showed an exploded view of polyphase motor as well as an operating exhibit of reversible brushless single-phase motor and a totally enclosed self-ventilating motor with across-the-line starting equipment.

International Nickel Co., Inc., New York, in addition to an exhibition of monel metal and pure nickel in rods, sheets, tubes, wire, forgings, castings, etc., displayed samples of finished vital parts of power plant equipment as produced by leading manufacturers in this field.

Invincible Vacuum Cleaner Mfg. Co., Dover, Ohio, had on view a complete line of portable vacuum cleaners and a new industrial model for mills and factories.

Jenkins Bros., New York, had an attractive exhibit of bronze and iron valves marked with the Jenkins "Diamond" trade mark, cast in relief on the valve body above the signature "Jenkins Bros.," in addition to mechanical rubber goods of all kinds and Montcrieff Scotch gauge glasses. A feature of the display was a 20-in. motor-operated iron body valve.

Johns-Manville Corp., New York, had a self-contained exhibit built of J-M Transite consisting of three shadow boxes, the center panel of which showed their complete insulation service to industry. Johns-Manville has recently acquired the Celite Products Company and the Banner Rocks Company which has made this complete service possible. Another of the panels was devoted to the J-M packing material and still another to building materials.

M. W. Kellogg Co., New York, displayed an impressive record of Kellogg installations, featuring the products manufactured by the forge and hammer lap welded process, as well as various types of flanges, gaskets and joints. A section of a forge and hammer lap welded boiler drum attracted considerable attention.

Kennedy-Van Saun Mfg. & Eng. Co., New York, showed an animated picture of their air-swept tube mill pulverizing coal and automatically firing the furnace of a boiler with this type fuel.

Keystone Refractories Co., Inc., New York, occupied a position of prominence overlooking the main floor to display Dura-Stix fire brick cement which is capable of withstanding very high temperatures and is employed wherever fire bricks are used, also a line of other refractory material of a granular nature including "steel veneer." An apparatus named the Keystone refractories sprayer which is designed to "shoot" premixed materials on furnace walls was also exhibited.

Keystone Lubricating Co., Philadelphia, showed a novelty in the form of a pneumalectric lubricating system which is controlled by an electric clock. Units of Keystone safety lubricating system, Keystone grease cups, pressure fittings and various Keystone lubricants were also on display.

Link-Belt Co., Chicago, made an impressive display of drives and chains for the positive transmission of power, with their line of Link-Belt silent chain drives, finished steel roller chains, Link-Belt herringbone speed reducers (Sykes tooth form) and other interesting products.

Lunkenheimer Co., Cincinnati, Ohio, featured the display of a six-inch cast steel outside screw and yoke globe valve with by-pass, designed for 1,350 lb. working steam pressure. To facilitate operation, the handwheel is mounted on an auxiliary shaft which is geared to the main valve stem.

Mason Regulator Co., Boston, Mass., had a number of interesting products on view in the space occupied by them. These included a complete line of pressure reducing valves, pump governors, damper regulators and balance valves. A special display was made of their No. 329 double diaphragm auxiliary operated reducing pressure valve used for holding the reduced pressure at a minimum variation.

Merrick Scale Mfg. Co., Passaic, N. J., made an interesting exhibit of their conveyor weightometer, which is a conveyor scale. There was also an exhibition of the Merrick Addo-weight weighing buckets of coal passing along a monorail track, and the Merrick Mechanical Weighman for weighing tanks of material was displayed together with the Merrick Acquitas, a printing platform scale.

Midwest Piping and Supply Co., St. Louis, Mo., exhibited "Globack" joints for 600, 900, and 1,350 pounds pressure piping, together with photomicrographs of "Globack" joint lap sections to demonstrate the improved structure of the metal resulting from the method of hot working. A number of photographs were on display to demonstrate the particular point of excellence claimed for Midwest piping.

Mixing Equipment Co., Inc., New York, demonstrated the electrically driven mixing units bearing the trade name of Lightnin' Portable Mixers, various sizes of which were on

exhibition and shown in operation. The mixers are supplied in the screw propeller type of one-twentieth to 10 horsepower. There is a side angular propeller type made for fixed installation on tanks of any size or shape.

Nash Engineering Co., South Norwalk, Conn., as customary at the National Power Show, occupied the place of prominence at the head of the entrance stairway. Here, spacious quarters were maintained for the exhibition of pumps, the booths occupying two sides of the entrance to the main aisle on the first floor. A gilded arch spanned the booths bearing in black letters the words: "The Growth of the National Power Show Is an Index of the Progressive Spirit of Industry." Several distinctive types of heating pumps, vacuum pumps, centrifugal pumps, condensation return system and sewage ejectors were displayed.

Norma-Hoffman Bearing Co., Stamford, Conn., made a remarkable display of ball, roller and thrust bearings, including several new types of bearings, like ball bearings with special forms of dust protecting and grease retaining devices. In addition a line of extra light series of ball and roller bearings having a very large bore with a small outside diameter were exhibited. Some sectioned parts in which the bearings are applied were on display, the sections being made in such a way as to demonstrate the principle of mounting involved.

Northern Equipment Co., Erie, Pa., featured the Copes feed water regulator in both standard design and type R for high pressures. Other apparatus on view included the Copes pump governor, the Copes condensate control, water level indicator, valve movement indicator and the Copes control valve.

Oakite Products, Inc., New York, made a most efficient and convincing display of the uses of Oakite and related products as used in the cleaning of power plant equipment. A display was made of exchanger and condensing tubes before and after cleaning with Oakite, and the effect of Oakite cleaning solution on air filters was demonstrated. Pamphlets were distributed bearing on the technical and engineering services available through Oakite Products, Inc. One of these pamphlets, entitled "Oakite in Power Plants," enumerates and describes many uses for Oakite materials in engine rooms, machine shops and elsewhere.

Permutit Co., New York, made an interesting exhibit in one of the two booths occupied by them, of the model of a water softening and filtering equipment such as is used in industrial plants. The model, which measured about 4-ft. in length, was made to scale after the design of a large commercial unit that delivers 100,000 gals. a day. In the second booth on an upper floor were displayed Ranarex instruments for recording CO_2 gas density, ammonia gas, etc.

Philadelphia Gear Works, Philadelphia, exhibited a complete line of speed reducing units, couplings and gears, showing in this way Philadelphia Combination Spiral Bevel Herringbone Gear Reduction Unit for uniform transmission of heavy loads at a high speed; Philadelphia "Continuous Tooth" Herringbone Reduction Unit, together with standard types of gears.

Pittsburgh Piping & Equipment Co., Pittsburgh, Pa., made a feature in their display of the "Pittsburgh Piping Creased Bend," and exhibited specimens of high-pressure fabricated piping material for installation in paper mills and other industrial plants.

The Wm. Powell Co., Cincinnati, Ohio, made a display of an educational character, showing an interesting assortment of bronze, iron and steel globe, angle, check, gate and safety valves, as well as oilers, lubricators, grease cups and various other engineering appliances.

Quigley Furnace Specialties Co., New York, had an exhibit of Quigley acidproof cement, but the most attractive feature in this booth was a showing of piping coated with the Quigley Triple-A colors. A miniature water wheel, the blades of which were coated with Triple-A protective coatings, was made to pass through a tank of brine solution to demonstrate the resistance of the coatings to its action, and specimens of piping were exposed in various acid and other corroding solutions to show the resistance of the Triple-A coatings, which in addition to black are supplied in twelve stock colors, suggesting the use of the coatings as a means of identifying piping according to the A.S.M.E. system.

Reliance Electric & Engr. Co., Cleveland, Ohio, exhibited five representative electric motors and a motor generator set, ranging from a 1 hp., 900 r.p.m. A. C. motor; an A. C. squirrel cage motor of 25 hp., 900 r.p.m. a fully enclosed fan-cooled motor, 5 hp., 1,740 r.p.m. a Reliance D.C. heavy duty motor of 15 hp., 1,150 r.p.m. and a 20 hp., D.C. motor provided with semi-enclosing and fully-enclosing covers. There was also shown a 3½ kw., A.C.-D.C. motor-generator set mounted on new type welded base.

Richardson Scale Co., Clifton, N. J., had on view a full-size unit of a Richardson apron feed automatic crush coal scale, which is an automatic scale of the Hopper type fed by means of an endless apron feeder built in as an integral part of the machine. A full-size Richardson Convey-o-Weigh was also displayed.

Riley Stoker Corp., Worcester, Mass., exhibited, in addition to one of their up-to-date No. 4 pulverizers, and a No. 4 Riley flare-type burner, a section of a complete Jones stoker, including the Riflex stoker dried unit. A section of a Riley-LaMont water wall was also on view at this booth.

Joseph T. Ryerson & Son, Inc., Chicago, made a display of Ryerson steel products, including machine tools, boiler tubes and fittings, reinforcing material, stainless iron sheet, safety thread and babbitt metal.

Schutte & Koerting Co., Philadelphia, Pa., who are known in the paper industry from the S & K Desuperheaters, made an impressive display of heavy duty steam valves, which included a toggle top stock check valve built for 2,000 lb working pressure. Also exhibited were gear pumps for fuel and lubricating oils, trip throttle valve for turbines; steam-jet and water-jet trimmers for pumps; oil cooler; oil burners, and boiler feed injectors.

Sharples Specialty Co., Philadelphia, Pa., showed several centrifuges, one of new type, a 20-in. horizontal centrifuge, designed to load and unload while operating at full speed.

Shepard-Niles-Crane & Hoist Co., Montour Falls, N. Y., had an attractive exhibit of hoists in operation, and by means of enlargements from photographs presented views of installations and single pieces of compact hoist equipment.

F. L. Smidth & Co., New York, afforded visitors to their booth an opportunity of studying a Lenix drive in operation. This was the Lenix Short Center Belt Drive, featuring the short pulley centers and the silent operation of a fine piece of machinery. A demonstration was also made of high belt speed and the automatic adjustment of belt tension to meet varying loads. As a modern aid to belt drives the Lenix is popular wherever used; it permits the drive to extend in any direction and yet be a 98 per cent efficient drive, the engineers in attendance said.

Taylor Instrument Companies, Rochester, N. Y., exhibited a complete line of indicating and recording thermometers, index (dial type thermometers), thermo-electric pyrometers of the indicating and recording type, mercury column vacuum gauges and barometers; also glass engraved stem thermometers for testing, automatic temperature regulators, etc.

Texas Company, New York, who advertise a Texaco lubricant for every purpose, showed a variety of lubricating oils and greases for use on power generating and transmission units, the lubricants varying by scientific selection with reference to the work factor involved, having special reference to conservation of power or limiting power losses caused by friction.

Tide Water Oil Sales Corp., New York, featured in their exhibit a display of Tycol industrial lubricants and motion pictures of plant lubrication, besides displaying a complete line of petroleum products designed to meet the most exacting requirements of industrial and power equipment.

Timken Roller Bearing Co., Canton, Ohio, made an exhibit of Timken tapered roller bearings of the kind that is now used so extensively in all types of paper mill equipment on account of their endurance of economy.

Toledo Pipe Threading Mch. Co., Toledo, Ohio, made a display of pipe threading and cutting tools from ⅛ in. to 12 in., also small portable pipe machines, power drives, work benches and vises.

Tube-Turns, Inc., Louisville, Ky., exhibited the Tube-Turn, a seamless drawn fitting for pipe welding, the applications of which to all kinds of piping were demonstrated by model installations and photographs.

Walworth Company, Boston, Mass., had an attractive display of valves, fittings and tools for steam, water, gas, oil and air, which included Sigma steel valves for high pressure, high temperature, steam service, besides chrome-nickel-iron pipe and Stillson wrenches.

Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa., exhibited in their booth on the main floor a working model or rather animated photograph, showing the operation of the Link-Grate Multiple Retort stoker, the latest design of stoker for large boilers and heavy sustained loads. Westinghouse turbines were exhibited in the space occupied on the third floor, an exhibition being made of a Westinghouse 150 hp. type "AMD" mechanical drive turbine.

Weston Electrical Inst. Co., Newark, N. J., displayed a number of electrical indicating instruments, both portable and switchboard A.C. and D.C. types. Also featured in this booth were a set of miniature A.C. testing instruments and a Weston model 539 portable current transformer.

C. H. Wheeler Mfg. Co., Philadelphia, showed several types of Radojet air pumps, and a display was made of pictures and photographs illustrating the C. H. Wheeler Dual Bank Surface Condenser and other equipment as furnished to power plants, oil refineries, sugar refineries and pulp and paper plants.

Yale & Towne Mfg. Co., Stamford, Conn., made their usual interesting exhibit of material handling equipment, consisting of electric industrial trucks, tractors and trailers. A few novelties were seen, as the Yale model K24C four-wheel steer, four-wheel drive, heavy-duty electric tractors, and the Yale model K26, six-wheel steer, 5-ton capacity, low lift elevating platform truck.

Yarnell-Waring Company, Philadelphia, made an impressive exhibit of Yarway blowoff valves, including the seatless and double tightening types for all pressures up to 1,800 lb. There were also shown a line of Yarway floatless Hi-lo alarm water columns and Sesure inclined gates. A new development in flat glass gauge design was also shown, besides Yarway spray nozzles, hydraulic operating valves and pipe plants.

New Quarters for Paper Converting Machine Co.

Paper Converting Machine Co. of Green Bay, Wis., well-known manufacturer of folding, embossing and printing machinery for napkins, toilet tissue and towels, printing

machinery for bags and envelopes, creping machines, and bundling presses moved into new quarters on September 1, 1929.

The new plant, located at the corner of Harvey street and Monroe avenue, includes three offices, and a drafting room in addition to the shop. Such equipment of the shop includes a large number of new tools to permit the manufacture of all classes of converting equipment. The building is of brick one story construction, and has been designed for good natural lighting. A large part of the wall area has been given over to window space. Provision has also been made for excellent artificial illumination. The accompanying illustration shows an exterior view of the new plant.

The development of the new shop has been brought about by the increasing popularity of the Paper Converting Machine Co.'s line of napkin, towel and toilet folding machines, as well as the printing and embossing equipment.

Brown Remote Type Instruments

During the latter part of 1929 The Brown Instrument Company has brought to completion the development of a new line of instruments for indicating, recording and controlling various factors at long distances.

Ordinary pressure gauges, for instance, are not designed to work effectively at very long range. Yet for many pur-

poses there exists an urgent need of instruments that can be relied on to indicate, record or control pressures and other factors dependably over distances of several hundred feet and up to 30 miles. Brown remote type instruments were developed to meet this need.

All of these instruments are made to operate on the inductance bridge principle, adapting this method of transmitting motion to use with various elements in the respective instruments in such manner as to transmit impulses properly corresponding with the fluctuations in the factor to be indicated, recorded or controlled. The line now includes instruments for indicating, recording or controlling at long distances, pressures, flows, liquid levels or special data involving the position or motion of a member or element requiring observation or control at a distance. The latter applications are taken care of by the adaptation of the Brown Motion Transmitter, a new Brown instrument belonging to this remote type line.

Merco Nordstrom Makes Changes in Personnel

Several promotions are to be made in the organization of the Merco Nordstrom Valve Company, effective January 1, by order of the Board of Directors.

Comfort E. Brown, Eastern divisional manager, will become vice president in charge of sales, continuing his headquarters in New York City. C. C. Evernham, Western divisional manager, becomes purchasing agent in charge of all purchases and will be stationed in San Francisco. E. D. Rogers, Southern divisional manager, will become general sales manager and will make his headquarters in the San Francisco office.

Saxon Paper Products, Inc., of 15 Mercer street, New York, has filed notice of an increase in capital from $50,000 to $100,000 to provide for contemplated expansion.

Connecticut Valley Supers Meet

Superintendents Discuss Management Matters and Practical Problems in Papermaking at Anniversary Meeting

THE Connecticut Valley Division of the American Pulp and Paper Mill Superintendents Association, which was organized on November 18, 1922, celebrated its seventh anniversary in Holyoke, Mass., where its headquarters are maintained, on Saturday, November 16. John J. White, first president of the division, who is still its chairman, presided at the opening sitting, giving place later to John P. Kennedy, who conducted what proved to be one of the most interesting, informing and altogether worthwhile sessions in the history of the organization. Members and visitors were present from all parts of the state, as well as from Connecticut, New Hampshire, Pennsylvania, Delaware and New York. Including the ladies, who were entertained in various ways while the business session was in progress—some attending matinee performances at the local theatres and others enjoying card games—the total registration was 105.

New Laboratory of American Writing Paper Co.

Some of the mill men and visitors spent Friday night in Holyoke at the Nonotuck hotel which was headquarters for the meeting, and opportunity was afforded to visit a few of the papermaking plants on Saturday morning, as the meeting did not start before 2:00 p. m. The new laboratory and technical control department of the American Writing Paper Company, which now occupies a large building that was formerly the Wauregan mill of the company, is an impressive addition to the company's resources and it was visited by several interested members of the party, who were conducted over the laboratory by Miss Lena E. Kelly who is in charge of the Department of Tests, Miss Helen U. Kiely, head of the Department of Technical Control, being absent from Holyoke at the time. As an evidence of the increasing attention which is now being paid in all large papermaking establishments to standardization and control tests it may be noted that something like $10,000 has been spent by the American Writing Paper Company in equipping a humidity room alone. The interesting miniature papermaking machine which has figured at some of the national expositions during late years is now admirably placed in one of the rooms of the laboratory where sample sheets are made and colors are tested. On the ground floor adjoining Miss Kiely's office is an attractive library filled with books and periodicals relating to paper technology, including a file of THE PAPER INDUSTRY. One of the papermaking machines of the old Wauregan mill has been left in place and commercial runs are still being made on it. This affords an exceptional advantage and adds a finishing touch to the laboratory building which makes it unique among similar structures.

President Ramsey Is Introduced

The meeting was opened by Chairman John J. White, who stated that the division was celebrating its seventh birthday in the very room in which the initial meeting was held in November, 1922. Alluding to the presence in the room of James Garfield Ramsey and John H. O'Connell, he stated that the division was honored with the presence, not only of the national president of the American Pulp and Paper Mill Superintendents Association, but also the president of the national organization in the year in which the Connecticut division was formed.

President Ramsey said it was a pleasure and a privilege to address the gathering in his capacity as president of a national body which was the greatest industrial association in the country, an association, which a former president of the American Paper and Pulp Association said at the annual meeting of the Superintendents' Association in Wausau, Wis., this year, had done more for the industry than any other association in existence.

A Tribute to Jack O'Connell

Mr. Ramsey said he had a pleasant duty to perform. There was a man present who during all the early days of struggle and effort of the Superintendents Association had been always to the fore, and he called upon Past President John H. O'Connell to come to the front and be invested with a past president's medal or badge of office. This consisted of an old gold bar and chain from which a medal was suspended bearing the emblem of the association. The bar had in raised letters the words, "John H. O'Connell (1922-1923) Past President".

Mr. O'Connell expressed his appreciation of the honor, saying that to have been president of the national association was the greatest achievement of his life. He narrated some of his experiences in assisting to organize the Connecticut Division when he was president in 1922 and took occasion to congratulate the papermakers of the district on their success in building up a worthy division of the national association.

Papers and Discussions

In turning over the conduct of the meeting, which he presently did, to John P. Kennedy, Chairman White announced that five new members were to be admitted to the division at this meeting.

Mr. Kennedy in taking charge of the proceedings, said that only one address was to be presented at this meeting, that by L. C. Reynolds, comptroller of the American Writing Paper Company, on "Control in Management", the remainder of the time to be devoted to the presentation and discussion of practical questions in papermaking, of which an interesting series had been prepared.

On Following Instructions

Mr. Reynolds prefaced his set paper with a few observations pertaining to his early experience with the General Electric Company and got his audience in good humor and in a receptive mood by touching on some humorous happenings in connection with management control. He led off with a story of the railroad conductor who was instructing a new brakeman on how to call out stations. This conductor said to the brakeman: "Now you watch me and listen. When I call out a station, you say the same thing at your end of the car." The next station was Schenectady, and after it was announced by the conductor, the brakeman, following instructions, called out, "The same thing at this end of the car."

Control in Management

Mr. Reynolds intimated that the problem of management control had not changed materially with the passage of time. The system used twenty years ago by the General Electric Company was, he said, as good as the best of the systems in use to-day.

Definitions of "Comptroller" and "Controller"—In the opening words of his address, Mr. Reynolds gave definitions of Control. Thus, "Control is that which guides those who direct industry." His own official title in the American Writing Paper Company is "comptroller", and he pointed out that comptroller is an ancient term which meant keeper of the counter rolls, or, as we would say to-day, ledgers. Controller, on the other hand is quite a modern word used to designate that executive whose duty it is to direct the financial affairs of a corporation.

Financial Problems Concerned with Control—Four major financial problems were concerned with control. These were stated to be Control of Fixed Expenditures, Control of Work-

ing Capital Uses, Inventories Control, and Control of Income. He gave interesting examples of correct and incorrect management under these headings. One point brought out under inventory control was that "Nothing is cheap, no matter what the efficiency, if it is something we don't want." It was also pointed out that 10 per cent is added to the original cost of material after it lies a year in stock, this representing approximate interest and carrying charges. If it is carried five years its cost goes up 50 per cent. In discussing the bearings of this, Mr. Reynolds said: "A minimum sales order is something resulting from sales policy determined by a great many factors, including the production cost, but once the order is taken it is our duty to organize and equip to make that much and no more than sound business control will warrant. I have known of inventories with a one month turnover in total, but with items requiring as long as ten years to turn. And such conditions have often been excused with the statement that the quantity on hand is caused by requirements of the minimum economical production order.

"On this same basis we might buy carlots of all our supplies. How would it look to have a carload of a certain size of bolts and nuts to arrive at your door, because it made the price of the one desired bolt and nut much cheaper?"

Forecasting and Planning—Quoting a New York banker, Mr. Reynolds said that forecasting and planning were the essence of modern day business management and vital to industrial prosperity. Forecasting and planning were part of the system of control whereby production, purchase of materials and the employment of capital are co-ordinated with sales requirements. The focal point of the system is the sales outlet. He emphasized that "The flow at this point must be gauged, and every other activity must be co-ordinated with it."

To keep down operating costs in dull times, it was best from the standpoint of economy to shut down one unit of equipment and run one unit full time rather than to run two units half time. It was admitted that the latter plan was more convenient for the production force and made it easier for the sales force to handle peak loads, but business gained at the cost involved thereby was never warranted. The large corporations apply the principle of shutting down equipment and operating only what they can run on full time. Mr. Reynolds said he knew of one large industry that closed a plant of 3,000 employees and consolidated the work in another plant 500 miles away so as to cut operating expenses during a period of depression.

Standardized Furnishes—Touching on standard specifications for manufacturers, he said that no production control was possible without them; at least standards for use of materials or what a paper mill might call a standard furnish. In view of the variations in the raw materials used by the papermaker, it might seem impossible to establish a standard furnish. But, Mr. Reynolds pointed out, the metal industries have been using such for years. To the objection that materials used in the metal industry are simpler and less variable, Mr. Reynolds said: "Well I have heard a paper man say that a piece of steel is—well—just a piece of steel, so simple. And I have heard a man versed in steel manufacture say the same about paper.

"Having been in both other activities, I can say that the variations and capacities of paper materials are really small compared with some industries." He insisted that the good features of the newer industries must be adopted by pulp and paper men and standards was one of those good features.

There was much sound reasoning and no little philosophy in many of the observations made by Mr. Reynolds. Thus, on the question of material quotas, he asked how often they had seen a paper mill purchasing agent contracting for a given lot of material based on last year's usage. "The past is behind us and we are interested only in the present and the future. Purchases should be based on forecast of the future and not on what we did last year. But a forecast can not be made without, first, the sales forecast, second, the manufacturing quotas; and third, the standard furnishes."

Standard Pay Rolls—On the important subject of a standard pay roll, with or without wage incentives, Mr. Reynolds was emphatic in saying that once manufacturing quotas had been allocated it was easy to make up a standard pay roll for regular operation—a list of human beings, as he expressed it, who, working full time, would produce the quotas that had been set up from the sales forecast. "Such a force working full time, or as near to it as the accuracy of our forecast, will have larger income per person, will be more contented, more efficient, and make for better quality and uniformity of product."

Mr. Reynolds said that in a study of a fifty-two pulp and paper mills only seven of them had any wage incentives, such as bonuses, etc.

Standard Costs—Standard costs is still a hazy subject with many operating executives. The speaker said that standard cost consisted of three elements—materials, labor, and overhead. Having a standard furnish it was easy to figure a standard cost for it, and with a standard pay roll and resulting figures for production rates, the standard cost of labor for each item of cost was easily arrived at. Adding together the three elements of standard cost gave the standard cost for any unit of production. Actual costs could be compared with the standard and the cause of difference determined.

Control of Profits—It was important to see that standards and controls set up for expenses were less than the income represented by the sales forecast by an amount which must be earned as profits. The reason for success of some of the larger corporations was insistence on budgets and control which provided that cash outgo be less than cash income. By keeping within control profits could be figured ahead of time. He closed by propounding the question:

"Which formula would you use—Income minus Expense equals Profit or Loss, or Income minus Profit equals Allowable Expense?"

The Speaker is Quizzed—There was an animated discussion of Mr. Reynolds' paper. He was quizzed on some of the conclusions drawn by him. Jack O'Connell asked in reference to his statement that he was interested in the present and the future but not in the past, how he arrived at standards, insinuating that standards were based on past performances. Mr. Reynolds doubted whether he was quoted properly, but granting it admitted that we stood on what had been done.

A. T. Bartlett inquired as to when replacements were preferable to repairs, and Mr. Reynolds gave instances from his own experience in the American Writing Paper Company.

President Ramsey, who declared himself "A bug on standard furnishes," asked how the standard formula for a furnish could be altered, for variations arise in different years that upset calculations.

100% Capacity and Growth—The question of advertising was brought up and the opinion was expressed that advertising was not worth a whoop unless the advertiser had something to go with it, meaning quality or some particular appeal. In answer to a query as to whether increased cost would be warranted for the purpose of improving quality, Mr. Reynolds said there was a limit to quality.

In reference to his belief in 100 per cent operation, it was asked if any provision was made for normal growth. Mr. Reynolds said in answer to this that the tendency of most companies was to overbuild. He would rather swing a little business than expand too quickly. Provision for expansion is something that should be made very slowly.

He was quizzed concerning the real meaning of "100 per cent reduction," and asked if when a mill was running at 100 per cent capacity, this would not be a desirable time to drop nonprofitable items.

Mr. Reynolds said that his company now had four mills running more than 100 per cent capacity, but he reminded his bearers that quota and capacity are two different things. He defined "100 per cent" as bogey—the standard to shoot at.

In regard to standard furnishes, Mr. O'Connell inquired if weighed furnishes, that is, materials added in weighed quantities to a beater, invariably gave the production calculated for, but no definite reply was made to this.

Mr. Ramsey is Impressed—President Ramsey said the paper and discussion should encourage superintendents to uphold their vocation and gain for it the position it deserves.

It was only since the organization of the Superintendents' Association that superintendents had the guts to go to their superiors and tell them things, and it was only within the past six or seven years that superintendents had been taken into conferences with executives.

Use of Standard Equipment

Thomas H. Ireland, of Crane Co., manufacturers of valves and fittings, in speaking of the standards that had been adopted by the metal manufacturers, said it had been suggested that paper mills standardize their auxiliary equipment such as parts of electrical appliances, valves and similar apparatus. It was not unusual to find apparatus in paper mills connected with a dozen different varieties of valves. When a certain manufacturer's valve or electrical appliance was wanted, the purchasing agent would send out inquiries for the article, and according to custom, the order would go to the concern making the lowest price, a certain manufacturer or jobber perhaps making a price 5 per cent lower than that of other jobbers for the same kind of material. He said he knew of one case where a part of a plant was shut down for three days while waiting for repair parts for a particular type of valve. If this plant had been standardized on one manufacturer's line of valves it would have been convenient to take a part of one of the other valves of the same size from another part of the piping system and place it in the valve that needed repairs. In this way a loss of time and production would be avoided that might amount to more than the difference of 5 per cent saved on the original requisition.

On the motion of C. A. Tifft, which was seconded by President Ramsey, a rising vote of thanks was given to Mr. Reynolds.

Symposium on Papermaking Problems

The next feature of the meeting was announced by Chairman Kennedy as a series of questions and answers on practical problems in papermaking, which went on as follows:

1—How, on high-grade papers, could the impression be stamped in a certain instance on the bottom of the sheet, though the dandy roll stamped on the top of the sheet?

No definite decision was reached on this question. One speaker said that the place of the watermark on the street depended on the suction and weights, while another said the change might happen by reason of variations in dryer roll temperatures. It was intimated by other speakers that the questioner might not have been looking at the under side of the sheet.

2—Why do some mills express a preference for high free rosin size in place of a neutral size?

James M. Geraghty said a number of mills were using high free rosin size without experiencing trouble from rosin specks in the paper, specks being due to the way in which the size and alum were added to the beater. Mr. Kennedy asked him to elaborate on this and Mr. Geraghty said that he added the alum first to harden the water, especially when the water was soft, but if alum is added too soon, rosin specks will follow.

Mr. Ramsey did not agree with the speaker and said that the rosin should be added first. At the same time he did not think that a high free rosin size was better than a neutral size.

Mr. O'Connell said that rosin specks were caused by the use of an alum that was too acid and he advised a pH test of the alum.

3—Should starch be put into beaters early or late and should it be put in cold or boiled?

Arthur H. Wyman said the starch should be added in a cooked state, that is boiled, and put in before the rosin size.

Earle C. Esty said that the American Writing Paper Company laboratory recommended the starch to be boiled and added twenty minutes before dropping the beater.

Mr. Ramsey said that a better pop test was obtained with boiled starch added after the rosin size had been put into the beater. If, however, a higher finish was desired raw starch was used.

It seemed to be the sense of the meeting that best results as to finish were obtained if starch was added cold immediately after the beater was furnished and following the addition of rosin size.

4—Do stainless steel bedplates or beater bars heat more than ordinary steel?

No one present appeared to have any experience on this subject and Mr. Kennedy passed to the next question.

5—What has been the experience with pH indicators? Are they reliable or is there a preference for litmus paper?

Claude H. Smith said there was no question of the reliability of pH indicators; they were much more senitive than litmus.

6—It has been conceded that good half-stuff can be produced with a soda ash cook. Why is it that most paper mills still use lime or lime and soda ash?

Mr. O'Connell said that no one is using soda ash to cook with; lime and soda ash were used on old rags to cut the grease.

7—Is it possible to have a localized watermark come through to the layboy or cutter with marks straight across the web, or will they be inclined to bow from front to back due to the crowning of the press rolls? Can this be corrected?

Mr. Nixon said there would be no bow if the roll was perfectly cylindrical and he asked, Why do we crown our press rolls?

Mr. Ramsey suggested doubling the weights on the press roll to see if the pressing had anything to do with it.

Following a reference by Mr. Tifft to the influence of the felt in bowing after it had lost its natural stretch, R. W. Pattison expressed the opinion that reducing the crown on the roll would prevent bowing of the watermark.

8—What advantages are there in using glue or gum in conjunction with rosin sizing?

Mr. Pattison said that sizing retention was increased when 2 per cent of gum or glue was added to the contents of the beater; gum had the effect of hardening rag paper more than glue. Mr. Bartlett saw no advantage in the use of glue. In one case with the use of glue in a furnish containing 50 per cent of groundwood he did not get any increased retention.

It came out incidentally that two grades of rosin sizing emulsion were used by fine paper manufacturers, the higher grade with respect to color being allocated to mills making high grade papers.

9—In preparing glue for tub sizing what is considered good practice for the preservation of the glue?

Formaldehyde alone is sufficient for the preservation of glue and there was no advantage in the use of alum. As Mr. Ramsey said, if an excess of alum is used the paper will deteriorate rapidly.

10—High-speed beaters versus low-speed beaters.

Mr. O'Connell said that the new-fangled beaters consume more power than did the old-fashioned type, but L. E. Weiser approved the new high-speed beaters, especially in the manufacture of paperboard. Capacity was doubled in what he termed "the mud mill we run down there", and production was increased 25 per cent with an increased power consumption of only 20 per cent. He said that the increased power consumption was offset by saving in jordan power due to improved action of the beater.

Mr. Pattison said that the new Niagaras were power eaters, and that a converted flat-bottom Niagara had increased production and decreased power consumption.

After a suggestion by Mr. Nixon that the secretary keep the subjects of the symposium alive for discussion at a subsequent convention, the meeting was adjourned.

Dinner Dance Closes Meeting

The meeting was brought to a close with a dinner dance in the evening which was attended by 150 members and guests. A pleasing feature of the dinner was the rendering of musical selections by the Collins Trio, daughters of Henry Collins, of the Crocker Division of the American Writing Paper Company. National President Ramsey demonstrated his ability as a vocalist by responding to an encore, which was enthusiastically received. Delighted appreciation was also expressed by all in attendance for the singing of Louis Provost, a papermaker employed in the Crocker Division of the American Writing Paper Company. Although the

dinner was graced by the attendance of S. L. Willson, president of the American Writing Paper Company, who sat at the head table with John J. White, James G. Ramsey, John H. O'Connell and others, including a number of ladies, there were no speeches. Dancing was enjoyed until midnight, the music being supplied by the "Marionettes" of Holyoke.

Strange Heads Paperboard Association

Hugh Strange of the John S. Strange Paper Co., Menasha, Wis., was elected president of the Paperboard Industries Association at its annual convention November 19 to 21, which was held at the Hotel Commodore, New York City.

Mr. Strange succeeds John J. Brossard of the Fort Wayne Corrugated Paper Company, who presided at the meetings of the several divisions of the association during the convention. A committee to supervise the application of the industry's trade practice rules was named, and resolutions advocating a continuance of the present programs for the development of new uses and extension of present uses of paperboard and paper boxes were adopted.

Sullivan Machinery Co., Chicago, announces that the growing demand for its products has made necessary the enlargement of its Michigan City, Indiana plant. This addition has just been completed and orders are already placed for additional tools, which will secure a larger volume of production. Machine tool equipment at the company's Claremont, N. H. plant has also been increased during the year.

Thomas Fuller, formerly manager of the Charlotte, N. C., office of the Westinghouse Electric and Manufacturing Company, has been appointed Manager of the Atlanta district office to fill the vacancy caused by the death of H. A. Coles. Mr. Fuller has been prominently identified with many of the big electrical projects of the South.

New Catalogues, Books and Publications

Bailey Meter Co., Cleveland, Ohio—A new general bulletin gives a brief description of each of this company's products with illustrations. Bulletin No. 110 completely describes and recites the principles of operation of Seslyn operated devices for remote indication and record of liquid level, flow pressure, temperature, draft, position and other factors. Bulletin No. 82 covers in a complete and concise manner Thermo-Hydraulic Feed Water Regulators, illustrated with a number of diagrammatic figures.

Combustion Engineering Corp., New York City—A new catalogue describes and illustrates the Green Natural Draft Chain Grate Stoker. Among the interesting features of this catalogue is the table which shows three typical evaporative tests and drawings showing applications of this stoker to various types of boilers. Copies upon request.

Detroit Steel Products Co., Detroit, Mich.—A non-technical presentation of the methods to predetermine the daylighting and airation of industrial buildings in advance of construction, is given in two booklets, "Industrial Daylighting" and "Industrial Airation", recently published by this company, manufacturer of Fenestra steel windows. The principles of daylighting and airation are presented in a form that will make them usable to architects, engineers and plant owners or executives who are contemplating or preparing plans for an industrial building, and plant, maintenance and production engineers who wish to improve or alter daylighting and ventilating conditions in plants now operating. Copies on request.

Diagraph Stencil Machine Corp., St. Louis, Mo.—This company has put out a unique and valuable booklet called Shipper's Handy Helper. The products, various equipment for packing and marking shipments are illustrated and there is a wealth of information for the shipper, such as English phrases for marking export shipments, translated into the most important foreign languages, Metric conversion tables, etc.

Economy Pumping Machinery Co., Chicago, Ill.—This company, manufacturer of various types of pumps, has just issued the following bulletins: No. 413 describes a line of pumps particularly designed for pumping water containing solids of all kinds. These pumps are made in both horizontal and vertical design, in capacities from 100 to 500 g.p.m., and are recommended for stock pumping in paper mills. No. 414 covers a line of small capacity multi-stage pumps for which manufacturer claims unusually good efficiency. This pump is designed to meet the demand for a dependable pump of capacity below 400 g.p.m. No. 412 is devoted to non-clogging sump pumps which are designed for draining all kinds of pits and are claimed to be used successfully in paper mills.

Ford Chain Block Co., Philadelphia, Pa.—Descriptive date and prices on all items in this company's line of chain hoists have just been issued in a new catalogue. The special advantages of each type of Ford hoist are thoroughly explained—many useful tables of hoisting data are included—and the catalogue is profusely illustrated with photos showing the various hoists in use. Copy on request.

General Dyestuff Corporation., 230 Fifth Ave., New York City—Under the title "Dyestuffs for Coloring Paper" the General Dyestuff Corporation, 230 Fifth Avenue, New York, is sending out to customers and others interested an exceedingly useful color card containing some 306 specimens of papers tinted or colored in as many different ways, the stock representing unbleached sulphite papers, mixtures of groundwood and unbleached sulphite, kraft and bleached sulphite, all strongly bound and boxed in a stout cardboard case. The pages of sample sheets are prefaced with a classification of dyes according to (a) fastness to light; (b) to acid; (c) to alkali; (d) to chlorine; the degree of fastness being indicated by appropriate letters. This classification list should prove highly useful to paper mill chemists as well as superintendents in selecting the proper colors for special purposes. In the preparation of the samples, the colored papers were made in a practical way on a regular fourdrinier machine, and the size of the dyeings are sufficiently large to allow the paper mills to carry out tests, or to submit parts of the samples to their trade. There are notes on the proper method of dissolving colors, the use of sizing as a fixing agent for dyestuffs and the effect of fillers on the coloring of paper. The characteristics of basic colors, acid colors and direct colors with regard to their efficiency for paper fibers are interestingly set forth. It is presumed that any paper mill superintendent desiring a copy of the new color card could obtain one upon request.

General Electric Company, Schenectady, N. Y.—A recent bulletin, GEA-1170 is given over to the subject of G-E Synchronous Motors in Paper Mills. This bulletin describes the adaptability of G-E Motors to magazine grinders, beaters, pumps and jordans, and shows illustrations of these applications.

Link-Belt Co., Chicago, Ill.—A new roller chain data book, No. 1257, just issued, is claimed by this company to be the most complete manual for properly selecting and applying chain yet developed. This 96-page book illustrates the construction of the chains and wheels, and presents many pages showing practical applications of Link-Belt roller chain on all types of machinery. All data is clearly compiled and there is a presentation of lists of wheels up to 81 teeth. Copies upon request.

Revolvator Co., Jersey City, N. J.—The new Red Giant hand power model Revolvator with revolvable base, is the subject of bulletin No. 92A. This model can be used with any type of hoist or platform.

Stickle Steam Specialties Co., Indianapolis, Ind.—Bulletin No. 22 is descriptive of the Stickle Automatic Paper Drying System, and contains some interesting information on the drying of paper, which is accompanied by a chart showing condensate from each dryer on paper machine.

Tube Turns, Inc., Louisville, Ky.—A new bulletin, No. 105, describes the use of Tube Turns, the seamless drawn fittings for pipe welding, as installed in the new power plant at the Bureau of Standards, Washington, D. C. Diagrams of the layout are reproduced and there are a number of photos and specification tables.

BOOK REVIEWS

Directory of Canadian Mills—National Business Publications, Ltd., Gardenvale, Quebec, who are the publishers of the **Pulp and Paper Magazine of Canada, Canadian Woodlands Review** and **Pulp and Paper Engineering Catalogue**, have issued a **National Directory of the Canadian Pulp and Paper Mills and Allied Trades** for 1930, price $5. The volume is prefaced with a statistical survey of the development of the pulp and paper industry in the Dominion, an estimate of Canada's forest resources and detailed figures of hydraulic or hydroelectric installations covering forty-two pages. A tabulation of the waterpower installations of pulp and paper mills in Canada reveals an aggregate of 565,352 hp., of which 283,009 hp. is directly connected to pulp and paper machinery and 282,343 hp. to electric generators.

In the directory proper, the mills are arranged according to provinces. Newfoundland follows, with two-and-a-half pages of particulars of the mills of the Anglo-Newfoundland Development Company, Ltd., at Grand Falls and those of the International Power and Paper Company of Newfoundland Ltd., at Corner Brook. This regional directory occupies one-third of the book and is followed by a classified list of mills, according to products made which should be particularly useful for reference. A directory of men of prominence in the industry is included, giving their business connections, and there is also a list of printers and publishers, bookbinders, lithographers and engravers, arranged by cities and towns according to provinces, in alphabetical order. Detailed information concerning the Canadian customs tariff on paper occupies six pages, the remainder of the volume being taken up with lists of rag and paper dealers, machinery and supply companies and engineers, consulting chemists and consultors. There is also a list of pulpwood merchants and contractors in the Dominion of Canada, as well as of pulp and paper distributors, besides an enumeration, necessarily brief, of pulp, paper and allied associations.

A feature of the directory which is new to works of this kind consists of details of engineering and mechanical equipment of mills. This should make the volume well sought-after by machinery and equipment firms. The book as a whole is a valuable source of information concerning the pulp and paper industry in Canada.

The Month at Washington

WITH the falling of the gavel in the marble halls of the Capitol on December 2d, the regular session of Congress sped on its way. The House immediately took up the question of a reduction of normal income taxes and corporation taxes, with a cut of $160,000,000 as its ultimate goal, and hopes to pass a joint resolution on the subject before the holiday adjournment. The new bill will affect all taxes of the calendar year 1929, payable during 1930.

The lobby bill will be actively pressed by both houses, but not until the appropriation bills are passed, which will postpone consideration until after the new year. Stringent limitation of lobbying activities is, however, foreseen as there is considerable agitation on capitol hill against the employment of individuals to promote or oppose legislation in the halls of Congress which in any way affect the pecuniary interests of any individual, association or corporation. Whether business interests have a right to be considered before the "whole people of the United States," will be the question to be thrashed out.

The passage of a new tariff law seems to be deadlocked in the Senate, and unless a new leaf is turned by the opposition the prospects of a new tariff enactment may go by the boards. Leaders however predict its early passage.

Interstate Commerce Rulings—Rates on printing paper, wrapping paper, gummed paper tape, paper bags and shopping bags, from producing points in Ohio, to destinations in Iowa, Missouri, Nebraska, Kansas and Colorado, excluding points on the west bank of the Mississippi in Missouri and Iowa, are found unreasonable, and new rates are proposed, with reparation recommended in a report just issued by the Examiner to the Interstate Commerce Commission on Docket No. 21332.

In Ajax Paper Mills, Inc., vs. Pa. R. R., No. 21006, the Commission holds that rates on imported wood pulp from Baltimore, Md., to Buck Run, Pa., were unreasonable and reparation was awarded.

In Watab Paper Co. vs. Chicago & North Western Ry., No. 21146, the Commission finds that rates on sulphite wood pulp, in carloads, from Anacortes, Wash., to Sartell, Minn., were not unreasonable or otherwise unlawful and the complaint was dismissed.

In Warren Mfg. Co. vs. Boston & Maine R. R., No. 20553, rates on wood pulp, in carloads, from Mount Tom, Mass., Berlin, N. H., and Madison, Me., to Milford, N. J., were found unreasonable, and reasonable rates were prescribed for the future and reparation was awarded.

The Supreme Court is about to decide the jurisdiction of the Interstate Commerce Commission to prescribe rates to be charged for the transportation of imported wood pulp from Hoboken, N. J., to Garfield, N. J., in U. S. vs. Erie R. R., No. 30. The Hammersley Company filed a complaint with the Commission alleging that the rates on this wood pulp were unreasonable and requested a reasonable rate and reparation. The Commission found the rate unreasonable and prescribed a reasonable rate, with reparation. The question now is whether these shipments were intrastate or interstate.

Federal Trade Commission—An outline of the work of the Federal Trade Commission, involving 68 methods of unfair competition and unethical practices, ranging from deliberate misrepresentation of goods to corruption of employees, has just been issued by the Commission, which is a valuable guide to those who seek to study the problem of how to keep within the pale of the law. Among the classes of practices which the Commission has stopped are those of adulteration of goods, intimidation, trade boycotts, preventing competitors from obtaining advertising space, [illegible] of disparagement of competitors, resale price maintenance, misrepresentation, misbranding, price discrimination, secret rebates, commercial bribery, alleged free trial, money back guarantees, making unduly large contributors of money to associations of customers, procuring the business or trade secrets of competitors by espionage, by bribing their employees, inducing employees of competitors to violate their contracts, making false or disparaging statements respecting competitors' products, their business, financial credit, etc., use of false or misleading advertisements, making vague and indefinite threats of patent infringement suits, down to retailing under such false advertising insignia as "going out of business, must sell cheap".

The Commission has just sent out a new questionnaire in connection with its inquiry into resale price maintenance, for the purpose of making comparison of prices charged for price maintained goods and for non-price maintained goods, as well as to secure a cross-slant of the results of price cutting and price maintenance.

Income Tax Rulings—The Internal Revenue Bureau has ruled that taxpayers who habitually ask for an extension of time in which to file their income-tax returns are not to be granted this privilege in the future. Each application is to be considered on its individual merits, and request therefore must be accompanied by a statement showing a good and sufficient cause for the delay in filing the return. The Bureau claims that the privilege has been subject to abuse in the past and will be curtailed in the future.

Deduction from gross income of amounts paid by a taxpayer on account of fines imposed by a state court, and court costs and attorney's fees in connection therewith, have been disallowed in a recent decision of the U. S. Board of Tax Appeals (No. 18763), as not constituting ordinary and necessary business expense, since the fines resulted from violation of law and were therefore not necessary incidents of the conduct of business. The corporation was indicted under a state statute prohibiting certain price fixing agreements.

The question of whether an amount paid an attorney for so-called lobbying purposes is deductible from gross income as an ordinary and necessary business expense, was held an allowable deduction in another decision by the Board of Tax Appeals. The Commission of Internal Revenue held that the sums expended for lobbying expenses, for the promotion or defeat of legislation were not deductible. The Department of Justice is now considering the advisability of an appeal to the U. S. Circuit Court of Appeals.

Wholesale Prices—A further decline in the general level of wholesale prices is shown for November by information collected in leading markets by the Bureau of Labor Statistics, a decrease generally of 1¼ per cent, compared with October. With 1926 as the basis of 100, we find the following changes:

	Nov. 1928	Oct. 1929	Nov. 1929	Purchasing power of the dollar, Nov., 1929
Paper and pulp	89.0	88.2	87.9	113.8

Employment and Payrolls—Employment decreased 1.2 per cent in November as compared with October, while payrolls increased 0.4 per cent, according to a report just issued by the Department of Labor. With 1926 as the monthly average of 100, we find the following changes:

	Employment			Payroll Totals		
	1928	1929		1928	1929	
	Nov.	Oct.	Nov.	Nov.	Oct.	Nov.
Paper and pulp	94.7	96.2	96.9	96.8	98.5	100.7
Paper boxes	99.4	99.0	103.6	107.9	108.0	113.5
Paper and printing.....	99.9	102.9	103.1	103.2	107.7	109.1

New Publications—"The Future of Retailing and Wholesaling" is the title of a bulletin just published by the U. S. Chamber of Commerce, discussing the problems arising in the field of distribution and the methods by which the new 1930 census of manufactures and distribution will aid in solving.

"The Trade Practice Conference and Enforcement of Trade Rules" is another bulletin containing a review of typical methods followed in the formulation of trade rules and steps taken by various industries to bring about enforcement and a presentation of the progress made in the self-regulation of industry.

Waxed Paper Industry Trade Practice Rules—The Federal Trade Commission has approved ten trade practice rules adopted at the second trade practice conference of the waxed paper industry, held in Washington last June, and has approved five other rules as expressions of the trade. Among practices covered by the Group I rules are breach of contract, imitation of trade-marks, defamation of a competitor, use of inferior materials, accepting orders in large quantities but shipping in smaller quantities, deviation from standards, and selling below cost. The Group II rules apply to such subjects as standard form of contract, furnishing etchings and plates without direct charge based on actual cost, quotation of uniform price by manufacturer regardless of ink coverage, sales f.o.b. mill, and evasion of trade practice rules adopted.

Patent Figures—The stimulus of the machine era on the inventive genius of the country is reflected in the figures cited by the Commissioner of Patents in his annual report just made public. A total of 114,688 applications for patents, trade-marks, labels and prints, were received during the last fiscal year. Fees received during the year broke all previous records, totalling $3,783,000.

History of Wages—Those interested in wage changes and conditions of employment in America from colonial days to the present time, will find a store of valuable information on the subject in Bulletin No. 499, just issued by the Department of Labor. The book is divided into two parts, dealing with ages from about 1620 to the end of 1928, from 1620 to 1840, and from 1840 to 1928. The story is told in text and figures, and reads like a novel.

Government Trade Promotion—Unique and invaluable assistance rendered to American business, both in this country and abroad, is revealed in the annual report of the Bureau of Foreign and Domestic Commerce for the last fiscal year just made public. In this 58-page document is an almost endless variety of achievements looking to the promotion of American commerce and the elimination of inefficient trade practices. An enormous increase is shown in our export trade, which now exceeds five billion dollars annually, which is attributed largely to factory and sales efficiency. Besides furnishing information as to trade opportunities, obtaining satisfactory agents abroad, the Bureau also watches all tariff changes, credit conditions, patent violations, copyrights and trade-marks. With its foreign-trade machinery now brought to a point of high efficiency, the Bureau has turned its attention to a more intensive examination of domestic trade problems. In order to rapidly disseminate information and to keep in close touch with American business men, the Bureau now maintains 31 branch offices in the important trade centers of this country. These service stations are performing more valuable work each year, an increase of 17 per cent being shown over last year's figures.

Conference of Mail Users—Outstanding changes in postal service are predicted as the result of a recent conference of mail users, which discussed regulations governing various classes of mail, conditions of acceptance, methods of handling, and other allied subjects. Recently, various requests for modification of postal regulations have been made by mail users, and these were considered at length by the conference, including the elimination of the requirement of a minimum number of pieces in the mailing of nonmetered permit matter of the first class, eliminating the requirement that bulk mailings of third-class matter at special pound rates or at a minimum of 1c a piece be separated by cities and states by the mailers, etc.

In making changes, business men forget frequently that the Post Office Department is not a free agent, but is restricted in making changes in existing methods and procedure by Acts of Congress and by principles and policies which have stood the test of time. The modifications of postage rates which went into effect July 1, 1928, as a result of an Act of Congress, resulted during the last fiscal year ending July 1, 1929, in a net loss of revenues from mail affected of twenty-two million as compared with the revenue that would have been derived from such mail at the former rates.

It was pointed out that approximately three-fifths of the total number of pieces of third-class matter mailed, now goes under the bulk mailing privilege and that many persons and concerns who formerly refrained from using the permit system because they preferred to pay the postage by means of stamps affixed, are now availing themselves of the bulk mailing facility in order to reduce their postage expenditures.

A continuance of the experiment of business reply cards and envelopes was unanimously favored as of distinct benefit to business and as removing sales resistance, although recommending a change in their general makeup.

Bulk mailings by business concerns instead of by the piece was also advocated. A return card on both business and personal mail matter was also urged, for first class mail only. In the mailing of nonmetered first class mail in quantities of not less than 300 pieces was declared to be a hardship on the manufacturers of the country, because some days mailings might not run that high and other days it would be greater, and a change in the requirement was advocated. Regular mail truck pick ups were also advocated instead of requiring firms using nonmetered machines on first class mail to truck their mail to post offices. Postal regulations providing that mail sent out at pound rates of 1c apiece must be separated by the mailer into direct packages for post offices and states, were recommended changed, because mailers had to perform services which should be handled by the Post Office Department.

Extending the sealing privilege instead of wrapping, to all parcels carried by parcel post, because sealing is much more satisfactory, was urged upon the Department. The use of postal notes, instead of stamps, currency and coin, for mail orders, was advocated. Following the conference various committees were appointed to confer with the Post Office Department from time to time with respect to changes considered desirable in various classes of mail.

Business Engineering—Following the White House conferences for stimulating business, The U. S. Chamber of Commerce has set about immediately to set machinery in motion to carry out the President's intent. Meetings of trade associations have been called to get a wide interchange of information as to the exact situation in business, both in the elements of strength and weakness. As a result suggestions may be looked for towards stabilization of business conditions to prevent so-called panics. President Hoover's contribution to the nation's prosperity may therefore be said to have taken a new turn in engineering—business engineering of the nation's business. As a result there may be set up a national clearing house for developing and disseminating information as to important factors in the business situation that may develop from time to time. The anxiety of American business is not so much on production as it is on the maintenance of buying power and public confidence which provides markets for industry's products and keeps the wheels of business revolving. The object of the conference was to quiet and disprove inaccurate and disturbing rumors. There is now no fundamental weakness and no commodity price inflation. As late as October some of our industries were having the largest month in history. The whole problem is not to start the machine but to preserve the momentum that is already present. Thus will be set up in the near future, under President Hoover's guidance, an established machinery to preserve the balance of American business and to improve the weak spots in American industry.

NEW ENGLAND

N. E. Paper Merchants Meet

From a manufacturing standpoint, the November meeting of the New England Paper Merchants Association, which was held at the Harvard Club of Boston on the evening of the 21st, was of particular interest. C. M. Porter, of the National Kraft Paper Manufacturers Association, as the principal speaker, uttered some important statements about the need of greater mill-merchant co-operation for the successful working out of problems co-incident to overproduction of paper in several fields. The fine paper merchants listened to the speech with as much attention as the wrapping paper brethren.

Mr. Porter spoke of the success that attended the wrapping paper manufacturers in their work of trade practice regulation and standardization through the co-operation of the Federal Trade Commission. He urged the need of marketing idea exchanges between mills and merchants with the idea that almost any paper mill is able to change its product to some extent and can usually find papers to make on its cylinders or fourdriniers when the regular lines are facing an overcrowded market. It is the merchant's role, with his more immediate market contacts, to guide the manufacturer with information concerning the markets for those lines he is capable of producing.

President Arthur E. Ham presided at this meeting. Charles A. Esty, Charles Proctor and Matthew Byrne are on a nominating committee to report candidates at the January meeting of the association. One new member, Rutter & McNaught, Inc., Boston, was added to the roster.

Hollingsworth & Whitney Company will move its main offices about January 1st from the Atlantic National Bank building to the new Shoe Machinery building at the corner of High and Federal streets, Boston, where it will occupy the greater part of the fifteenth floor.

The paper committee of the New England Shippers Advisory Board, of which Patrick J. Dowd is chairman and Chester L. Whittemore vice chairman, reported to the general conference of the board that newsprinting operations are at capacity; that printing paper, pulp and book papers show an increase of five per cent production during the current quarter compared to the same period last year; that the same percentage increase is shown by writing papers, while paper articles such as papeteries, tablets, napkins, etc., increased seven per cent in production during October, November and probably for December over the same three months last year.

One of the greatest surprises that the New England paper trade has received in sometime was the voluntary retirement of Martin A. Brown, of Boston, treasurer and general manager of the Parker Young Co., paper manufacturer of Lincoln, Maine, and large owner of timberland in New England and on the Pacific Coast. Mr. Brown, who was largely instrumental in building up the paper business of the Parker Young Co. to its present degree of importance, retired because of ill health. His successor has not been determined at this writing.

An addition to the mills of the Rising Paper Co., Housatonic, Mass., is being planned by Lyman Howes, architect, who received bids for the work.

New England manufacturers feel they have missed a good bet when they examined for the first time Mosinee's new Cellusuede, a paper that simulates suede leather better than anything yet accomplished with a paper machine. It was seen as an ideal background for the menu card at the Boston Paper Trade Association dinner and there was much comment among the mill men as well as the merchants owing to the fact that it is made of a kraft base and yet is soft and pliable with apparently perfect printing qualities which amazed many of those present. The Fort Hill Paper Co., Boston, is distributing agent for Cellusuede in that territory.

James Logan

James Logan, vice president and general manager of the United States Envelope Co., Springfield, Mass., passed away December 1st at his home in Worcester, Mass., at the age of 77.

Mr. Logan was born in Glasgow, Scotland and came to this country with his parents when a small lad. He secured work in the mills in Massachusetts, studying at home in the evenings. In 1878 he became affiliated with the G. Henry Whitcomb Company and rose step by step in the envelope industry during the merger period which resulted in the U. S. Envelope Co. He was one of the genuine self-made men of the paper industry and the paper converting trade.

Another victory was gained by the New England Paper & Pulp Traffic Association when it learned of the preliminary report of the I. C. C., awarding it the verdict in the contest over increased rates on wood pulp. The decision affects rates on wood pulp in carloads from and to points on the Maine Central, Boston & Maine and Grand Trunk railroads in New England from Main Central R. R. points to points in New York state. The Commission found the increases not justified and the suspended schedules were cancelled.

Larrabee Makes Pacific Coast Connection

Benjamin T. Larrabee, former president of the American Paper and Pulp Mill Superintendents Association and for twenty-five years with S. D. Warren Co., Cumberland Mills, Me. (a greater part of the time as sulphite mill superintendent), has accepted a position as superintendent of the new sulphite mill being erected by the Olympic Forest Products Co., Port Angeles, Wash. Mr. Larrabee's resignation became effective December 1st. His successor has not been announced by the company.

Mr. Larrabee is recognized as a national authority on the manufacture of sulphite pulp, and his leaving the East is greatly regretted, not only by the management and his associates at Cumberland Mills, but by paper mill superintendents throughout the Northeast where he has been a prominent figure. A traveling bag was presented to him by his associates in the sulphite department and a wrist watch by the Westbrook Kiwanis Club of which he was a charter member.

Two new steamers, the Topdalsfjord and the Tyrifjord, have been placed in the pulp carrying trade to New England by the Norwegian American Line. These steamers carry 2,000 to 6,500 tons of pulp each trip from various Scandinavian ports consigned principally to Portland and Boston.

Transporting kraft paper and other lines from mills at Braithwaite, La., and Tuscaloosa, Ala., is one of the reasons for the establishment of a line of steamers from New Orleans and Mobile direct to Boston. The sailing time is eleven days from the former and eight days from the latter port. Attractive rates will be granted and there will be weekly sailings from Boston ports. Cargo from the interior paper mill points named has been guaranteed, say the sponsors of the new line. Rogers & Webb, steamship agents of Boston, will represent the new line which is to be inaugurated and carried on by Moore & McCormack Co., New York.

Col. B. A. Franklin, of the Strathmore Paper Co., explained the Giant Strathmore Envelope program for the coming year to a joint meeting of Boston service houses at the Chamber of Commerce on November 18th. Cook Vivian Co., Arnold Roberts Co., Carter Rice & Co., and Storrs & Bement Co., were the Boston houses represented. Col. Franklin explained that twenty-two of their lines have been taken from which envelopes are to be made. These will be available in

14 sizes and four styles, or a total of some 22,000. Sampling of this huge line is made possible by small cabinets furnished each merchant.

Dr. Hugh K. Moore, chief chemist of the Brown Co., Berlin, N. H., and former president of the American Institute of Chemical Engineers, is a candidate for governor of New Hampshire. Dr. Moore has been associated with the Berlin plants for 26 years. He is an economist of repute and the author of several publications on political and economic subjects.

New Paper Mill in Maine

A complete plant for the manufacture of newsprint will be built at Bucksport, Maine, at the head of deep-water navigation on the Penobscot river, 20 miles below Bangor, open the year round to navigation by steamers up to 10,000 tons. This plant, which it is reported will cost around $10,000,000, and the company will be known as the Maine Seaboard Paper Company, of which Walter S. Wyman, of the Central Maine Power Company, is president.

The entire plant will be of brick and steel with concrete foundations and concrete floors, and will be equipped with the most modern machinery in every department for groundwood and sulphite processes. There will be 2 paper machines, each 228 in. wide which will run at a speed of 1,200 ft. per minute with a combined output of approximately 270 tons per day. These machines will be built by Rice, Barton and Fales of Worcester. The plant is designed for the addition of 2 more machines should future conditions warrant their installation.

The company has purchased or taken options on 400,000 acres of timberlands in Eastern Maine. In addition, the new mill will constitute an outlet for pulpwood from small private holdings in this part of the State. Should conditions demand, the waterfront location will permit the delivery of pulpwood by steamer.

The large amount of water required for mill purposes will be supplied from a lake approximately three miles from the plant. This water will be pumped over an elevation of approximately 100 ft. by an electrically operated pumping station. Bucksport is the terminus of a branch of the Maine Central Railroad which runs south from Bangor. Although this line runs by the site of the new plant approximately 2 miles of railroad siding is involved in the construction.

This mill will enjoy the decided advantage of water shipment of finished product, making the entire Atlantic seaboard an economical market. In addition, the mill will be nearer the important northern seaboard markets than most other newsprint mills.

The Maine Seaboard Paper Company is a new organization whose officials are principally those of the Central Maine Power Company. The mill will be under the management of the same men as the present Kennebec Paper Company at Augusta, which is also controlled by the Central Maine Power interests. The product will be sold through The Wright Company at New York City. Total investment in the development is estimated at approximately $10,000,000.

This mill will use electric power from the new Wyman Dam, Maine's largest hydroelectric development now under construction at Bingham.

Construction has already begun and progress is so scheduled as to put the mill in operation late in 1930, coincident with the completion of the Wyman Dam at Bingham.

This development is being designed by George F. Hardy of New York, prominent paper mill engineer who has been responsible for the planning of several of Canada's most important newsprint mills. The construction is in the hands of the Morton C. Tuttle Company of Boston, builders of much important paper mill work and also builders of the Wyman Dam and other hydroelectric construction for the Central Maine Power Company.

Bucksport is a town of less than 2,000 people, population having declined nearly one-half since the early '60's when the town enjoyed its greatest prosperity. This new development will undoubtedly restore the town to more than its former prestige. Incidentally Bucksport has also been selected as the site for the new bridge which the State will build across the Penobscot to by-pass traffic through the Maine coastal route to Bar Harbor, Eastport and New Brunswick coastal points. This cut-off will eliminate Bangor and save an appreciable distance to through traffic.

The new mill will employ more than 200 hands, the housing of whom will undoubtedly result in considerable residential construction.

This project is the largest industrial development to be carried out in Maine in many years and is also the largest newsprint mill to be built in the United States in sometime.

Installation of the new machine at Hollingsworth & Vose Co., Boston, is nearly completed together with beater and other equipment. It will be in operation early next year.

Annual Forestry Encampment

The annual forestry camp of the forestry department of the University of Maine started the third week of November under Professor J. M. Briscoe, head of the department. Here future paper mill superintendents and foresters are trained and this annual encampment is a large part of the curriculum, being very practical field work. The camp work occupies nine weeks and is carried on with the co-operation of the Great Northern Paper Co.

The work includes forest management, logging engineering, cruising and mapping. The State Department of Forestry is supervising the work. Gerald F. Baker and Lloyd E. Houghton, of the Great Northern Paper Company, and graduates of the University of Maine, are assisting.

Merger of Paper Merchants

Two leading Boston paper firms, John Carter & Co., with a branch at Hartford, Conn., and Stone & Andrew Co., with a branch at New Haven, Conn., have joined forces. The combined firm will continue as John Carter & Co., and the Boston office and warehouse of Stone & Andrew Co. will be discontinued. Leon M. Poore of the Stone & Andrew Co. will become director of sales, while Harris E. Waite of the John Carter & Co. will be advertising and merchandise manager.

The most important mill brought to the combine is the Eastern Manufacturing Co., whose lines will be distributed by John Carter Co. in the future. Both houses were agents for Dill & Collins.

The Classification Committee docket which provided for special ratings on tissue paper as distinct from wrapping has been dropped and no further efforts will be made by the carriers along that line for the present. New England mills are greatly disturbed at this effort.

Thomas T. Rogan, general superintendent of the Fitchburg Paper Co., is again at his duties following a stay at the Mayo Bros. Clinic, Rochester, Minn., and reports himself much improved.

Nelson R. Davis, of the S. D. Warren Co., has been elected president of the Warren Memorial Foundation, created in honor of Samuel D. Warren, and used for educational purposes in Westbrook and elsewhere.

Stop Off in Transit Rate Granted

Paper mills on the Boston & Maine R. R. have been granted the privilege of consigning cars to destination on the through carload rate of freight with the option to stop off in transit partly loaded cars of paper for complete loading at intermediate points. In addition, there is a nominal per car charge.

Thus a shipper at Fitchburg could load a part car moving to Cleveland via Holyoke where the car could be filled to capacity with fine paper and both l.c.l. shipments would be moved at the carload rate plus said flat charge. This will permit a greater sale of some papers in the West where merchants hitherto have been unable to give carload orders. This privilege granted on eastbound traffic has not been in

Not the Lenix Drive

IN the October issue of this publication the above illustration appeared in an advertisement over the signature of this company. It was referred to as a Lenix drive. The statement was also made that the Lenix drive was a belt eater. Both these statements were erroneous and we wish to take this means to publicly correct any false impressions they may have created. The Lenix drive is scientifically designed to give efficient service on short centers, for which it is highly recommended.

The Graton & Knight Company has a special type of belt particularly designed and suited for use on short center drives—a special tannage belt that has built up a splendid reputation on this type of drive in industrial plants all over the country. We will be glad to tell any short center drive users the special merits of this belt.

GRATON & KNIGHT COMPANY

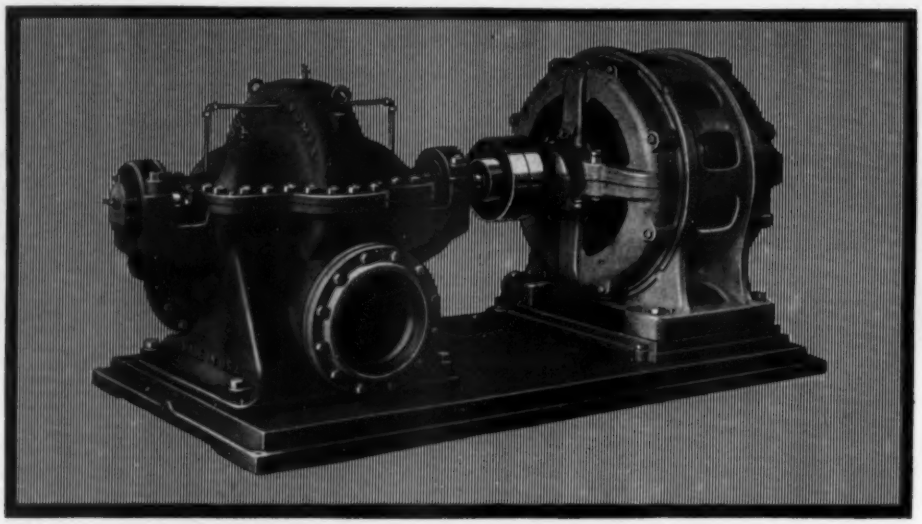
Worcester, Mass.

GRATON AND KNIGHT

Graton & Knight

Standardized

LEATHER BELTING LASTS LONGER



Modern Pulp and Paper Mill Practice Demands Modern Pumping Equipment

And modern pumping equipment means GOULDS. Makers of pumps since 1848, Goulds now has the world's largest plant devoted exclusively to the manufacture of pumps, and can offer you thoroughly modern pumping equipment for every pulp and paper mill.

The two centrifugals illustrated are typical of the Goulds line. They incorporate all the desirable features of high efficiency, low operating costs, long life and trouble free operation.

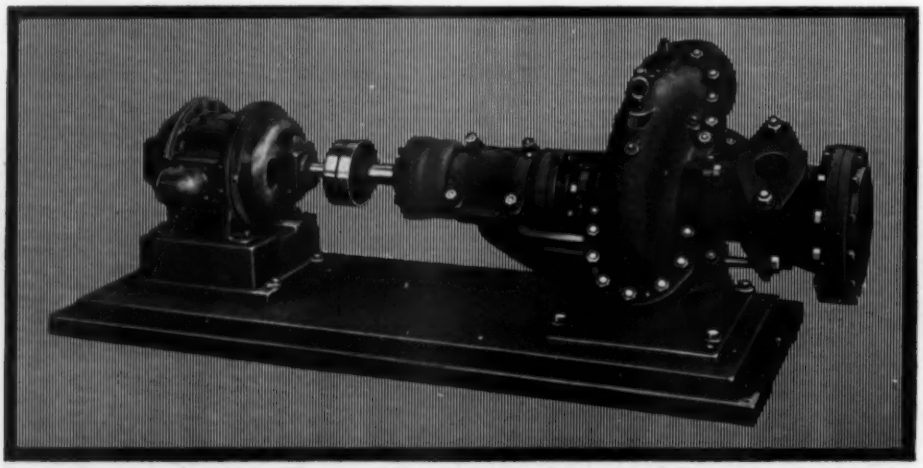
Fig. 3450, shown above, is an all Ball Bearing, single-stage pump particularly adapted to general service pumping in pulp or paper mills. Superior mechanical and hydraulic design, stream-line waterways and many years of experimental work, all contribute to the results shown by the remarkable performance and exceptional high efficiencies obtained with this line of pumps, showing as they do—80% on the 4" up to 90% on the 14" size.

Goulds Fig. 3105 open impeller stock pump, shown below, is fast becoming the leader in centrifugal stuff pumps. A non-clogging impeller with every facility for examination and cleaning, without disturbing piping or rotating element, are the principal features of construction. For efficient handling of paper stocks, investigate this pump.

May we send you more information and assist you in your pumping problems? Goulds representatives in practically every city. Call the one nearest you at any time. He will gladly help you.

GOULDS PUMPS INC.

SENECA FALLS, NEW YORK



effect in New England for sometime and was put through largely at the instigation of the New England Paper and Pulp Traffic Association.

❖ NORTHERN NEW YORK ❖

Unity Paper Mills in Bankruptcy

The Unity Paper Mills, Inc., Potsdam, manufacturer of book, magazine and bond paper, has filed a voluntary petition of bankruptcy in United States court and has liabilities of $262,047 and estimated assets of $388,000, including the plant which is put at $300,000. Judge Frederick H. Bryant appointed Bernard Wade of Potsdam and Arthur H. Martin of Norwood receivers to continue the business. Adjudication of bankruptcy was put off by order of the court until Jan. 4, presumably to permit a settlement with creditors. The receivers were appointed on motion by Attorney Frank L. Cubley of Potsdam, representing the company. The company has a first mortgage of $28,000 and a second mortgage, issued in 1927, for $150,000; outstanding and unsecured claims of $94,047. Assets include materials and accounts, $43,000; job paper, $15,000; and doubtful accounts, $30,000.

William M. O'Brien is secretary and treasurer of the company and a creditor of $15,059. Other claimants include E. J. Leonard, Syracuse, $106; Marcy-Buck Co. of Watertown, $1,206; and Carthage Pulp & Board Co., $875. The company's daily output is ten tons. Appraisers appointed are William E. Westbrook of Ogdensburg, Harold A. Long of Dexter and Fred W. Rodger of Potsdam.

Construction of a second fourdrinier paper machine for the Russian Soviet government will be started by the Bagley & Sewall Co. of Watertown soon, it is reported in paper industry circles. It will be used in the production of newsprint and will be of the ultra-modern high speed type, a twin of the 234-inch machine completed in the late summer and now being set up in the Soviet Volga river pulp and paper mill at Belahka. Bagley & Sewall Co. has under construction a machine for the Moyer & Pratt mill at Lyons Falls and is doing a large amount of repair work on old machines. Because of the unusual number of machines built for paper companies all over the world in the past quarter of a century, the repair work alone has grown to be a large item in the annual business of the concern.

Charges that New York state newsprint manufacturing companies were being discriminated against in railroad freight rates to the advantage of competing companies in the midwest and Canada were recently made at Atlantic City by Joseph Quinlan of New York, traffic manager of the St. Regis Paper Co. Testifying at an interstate commerce commission hearing relative to a general revision of the freight rates on newsprint, Mr. Quinlan said manufacturers in Wisconsin, Canada and New England, all enjoyed a preferential rate that he believed should be available to his company as well as others in the eastern section of the country.

Major Fred Henry Haile, 86, of Gouverneur, veteran pulp mill owner and Civil war veteran, died at his home in Gouverneur on November 24. Major Haile erected a pulp mill at Fullerville many years ago. He also owned large lumbering interests. For the past two years he had been living a retired life, having disposed of most of his business interests.

Thirty students of the Chemical Engineering Department of Clarkson College of Technology at Potsdam recently visited the paper mills of the Eddy Manufacturing Co. at Hull, Que. They inspected machines used in the manufacture of tissue, wrapping and newsprint.

Albert D. Merrill of Watertown, Edgar Simzer of Potsdam and Joseph T. Bond of Phoenix have been granted patents on their respective inventions, according to an announcement made by the United States Patent Office. Mr. Merrill invented a method and apparatus for bleaching pulp. He applied for the patent which recognized 21 claims on Aug. 11, 1925, and has assigned his rights in the invention to the International Bleaching Corporation. A joint patent was granted to Mr. Bond with Wilbur L. Wright of Fulton on their invention of a paper container, the rights in which were assigned to the Oswego Falls Corporation of Fulton. The container is adapted for holding rolled papers, such as manuscripts. Mr. Simzer's patent was for a heating apparatus for paper mill surge tanks. He did not assign his patent rights in the invention.

High Falls Mill to Be Reopened

John Adams, superintendent of the High Falls mill of the International Paper Co. at Chateaugay, recently announced following a conference with officials in New York that the mill will be reopened at an early date. Machinery and equipment have been placed in running order and Mr. Adams anticipates that operations will be commenced sometime this month. The plant has been inactive since March 2, 1927. It will employ approximately 75 workmen and will be run at its full capacity. The yearly pay roll will amount to in the neighborhood of $150,000.

Indication that this plant will continue operations regularly in the future is seen in the fact that raw material sufficient for a year's consumption has already been ordered. The principal product of the mill is newsprint and its estimated daily production under normal conditions is approximately 25 tons of paper and 20 tons of wood pulp.

R. E. Maltby of New York, vice president of the St. Regis Paper Co., and a group of company officials, including E. A. Bergholtz, Nils Teren, W. A. Gordan and F. M. Myles, recently inspected the plant at Deferiet.

E. L. Dona of Watertown, general safety agent of the Northern New York Utilities, Inc., recently inspected electrical equipment at the Taggart Paper & Bag Corporation plants in Oswego, Carthage and Watertown.

Roy Cring, 24-year-old son of Mr. and Mrs. Adelbert Cring of Harrisville, was killed at the plant of the Harrisville Paper Co. on Nov. 21. Cring, a back tender, slipped between two reels and was crushed while splicing a break in the paper.

John D. Rue Goes with News Print Service Bureau

William G. MacNaughton, who resigned as secretary of the Technical Association of the Pulp and Paper Industry in 1927 to take the place vacated by George D. Bearce as engineer to the News Print Service Bureau, has followed in the footsteps of his predecessor and accepted a position in the Manufacturing Department of the International Paper Company, Mr. Bearce having been shifted to the superintendency of the mill of the company now under construction and nearing completion at Dalhousie, N. B.

Mr. MacNaughton's successor in the News Print Service Bureau is John D. Rue, who recently severed his connection with the Champion Fibre Company, Canton, N. C., where he had been for two years director of research, making a wide variety of papers.

Mr. Rue brings to the newsprint industry an unusual combination of technical training and practical experience which will serve him in good stead in handling the many operating problems with which he will be confronted as engineer to the News Print Service Bureau. After he was graduated from Princeton University in 1906 as B.S. and later as M.A., he carried on postgraduate work at Heidelberg University, the Zurich Polytechnikum, and the University of Michigan, serving also at his alma mater as instructor and assistant professor of chemical engineering, 1913-1917. During the War he was captain in the Chemical Warfare Service at the Edgewood Arsenal and thereafter joined the man-

Power Saving . . . Profit Saving . . . Longer Life . . . Faster, Steadier Production with equipment operating on

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

Wherever installed on wheels, drives, shafts, gears, and motors, smooth rolling Hyatts transmit power without effort or waste. Practically frictionless, they avoid the sticking and drag of plain bearing surfaces.

The Hyatt Roller Bearing with outer race cut away to show construction of roller assembly. Our engineers will gladly submit bearing designs for any application in which you are interested.

Equipment lasts longer when rugged Hyatts are employed. Immunity from bearing breakdowns insures faster, smoother production. Attention is confined to infrequent lubrications. Labor and maintenance costs are negligible.

Throughout all industrial applications, as in railroad, automotive, mining and agricultural equipment, engineers have found that the Hyattway is the Saving Way.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

agement & Engineering Development Company in charge of the installation and operation of technical control in the Fraser mills at Edmunston, N. B.

From 1921 to 1927, Mr. Rue was in charge of the pulp and paper section of the Forest Products Laboratory at Madison, Wis., where notable contributions to the progress of the industry were made under his direction, including the introduction of the rod mill for refining and hydration of fibrous materials, the semi-chemical method of cooking, improved methods for the control of decay in pulpwood and wood pulp and the organizating of courses of instruction in sulphite pulp manufacture which were participated in by many mill operators and followed by the application of laboratory results in practical mill control.

Mr. Rue is chairman of the Committee on Waste Utilization and Stream Improvement of the American Paper and Pulp Association, a leading member of the American Institute of Chemical Engineers, one of the earliest members of the Technical Association of the Pulp and Paper Industry, and has been a member of the Technical Section of the Canadian Pulp and Paper Association since 1920.

PACIFIC COAST

WASHINGTON

Pacific Logging Congress

Unusual importance was attached to the pulp industry in the recent meeting of the Pacific Logging Congress which held its 20th anniversary convention in Seattle, October 23-26.

Included in discussions of interest to the pulp industry was a paper by E. P. Stamm of the Crown-Willamette Paper Company's mill at Cathlamet, who discussed the two types of skidder carriages used in that plant, the Lidgerwood device and one made by the Washington Iron Works.

Another comprehensive paper was that of Ossian Anderson of the Puget Sound Pulp and Timber Co. of Everett, who discussed the future of hemlock in papermaking. In fact, most of the discussion concerned with papermaking at this Congress was concerned with hemlock use, as this is a problem touched upon at nearly every meeting of timber or pulp interests in the northwest in the past few months.

Mr. Anderson stated that twenty years ago hemlock was not a problem, but today 15 per cent of logging is hemlock and within 10 years the total output may be expected to be 35 per cent. To date almost 40 per cent of hemlock has been left in the woods due to a lack of market for hemlock logs, with no market for those under 12 inches in diameter.

Whether the pulp mill offers a possible market for this waste was the basis of Mr. Anderson's paper. First he explained that in discussing the subject he would use "log measure" as a term of comparison assuming 1,000 feet log measure, scaled under Scribner's rules, will produce two cords of pulpwood if carefully barked and split. The statistics used by Mr. Anderson were based on conditions in Washington, although he said that practically the same statements would hold for Oregon and British Columbia.

In 1924 Washington had no chemical pulp mills and the paper mills at that time consumed approximately one million feet of hemlock logs for their own relatively small requirements of chemical pulp. The period of 1924 to 1929 witnessed a rapid development in establishment of chemical pulp mills producing pulp for sale to paper mills. There are now eight mills of this type in operation and two more under construction. All but two of these are strictly pulp producers and these two exceptions are converting part of the output to paper or paperboard. These plants have a capacity of 820 tons of chemical pulp per day and two plants under construction will have 325 tons per day.

Theoretically, these mills would consume 1,145,000 feet log measure of hemlock logs per day, but having first absorbed the available hemlock in sawmill waste, their actual daily consumption of logs and forest wood represents only about 400,000 feet. As a pulp mill operates 310 days a year, there is at present an annual market in the pulp mills of Washington for 125 million feet of hemlock logs or 250,000 cords of hemlock forest wood with a possible additional requirement for paper mills having their own chemical pulp units of approximately 10 million feet or 20,000 cords.

"Expansion of the pulp industry is dependent upon the continuous supply of low cost wood," said Mr. Anderson, "and the pulp mills of the state can afford to pay from $6 to $7 per cord for clean hemlock forest wood and can afford to pay a little more if a percentage of spruce is included, all depending on the general quality of the wood.

"On an average stand of 30,000 to 40,000 acres of merchantable hemlock per acre, there is approximately 25,000 feet of available pulpwood depending on the nature of the trees in various localities."

Officials of the Blake-Moffitt & Towne Co. met in conference in Seattle the last week in October to consider sales promotion problems and other plans for the co-operation of the various northwest branches of the company. C. L. Shorno, vice president and sales manager of the coarse paper department, and Walter W. Huelat, vice president and sales manager of fine papers, of Portland; J. M. Thompason, manager of the Seattle branch, and J. C. Whitelaw, sales manager of Seattle; Frank E. Jeffries, president and I. J. Hall of Tacoma were present.

Paper mills at Port Angeles have suffered a lack of water for operation due to scant rainfall in the district this fall, and mills from Ocean Falls, B. C., and from Oregon have been called upon to supply the demand of San Francisco newspapers for their pre-holiday needs of print paper.

The Rainier Pulp & Paper Co., whose plant is at Shelton, is planning additions and remodeling work looking toward higher efficiency and a larger output.

The Longview Fibre Co. has installed four new machines in its plant for bag manufacture, making 13 machines in all.

OREGON

Crown-Willamette to Reforest Large Area

The Crown-Willamette Paper Co. will start reforestation of a tract of land 1,400 acres in area in the Young's river district, where about 600,000 trees of spruce will be planted. The company has already planted 6,000 trees in this region.

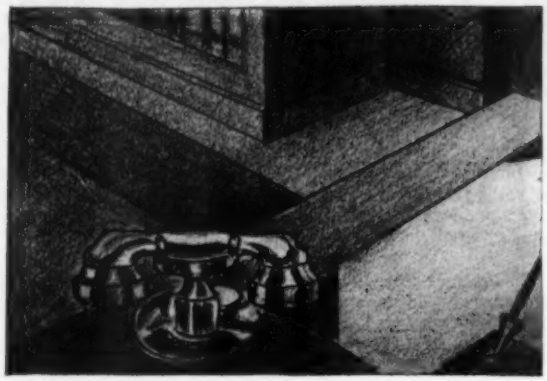
The Crown-Willamette company recently signed a contract with the state game warden effective November 1 by which 66,700 acres of its land may be used through the next five years as a bird and game refuge. This land lies in Clatsop county and part of it was used during the past five years as a game refuge, but this year about 17,000 more acres were added to the original contract.

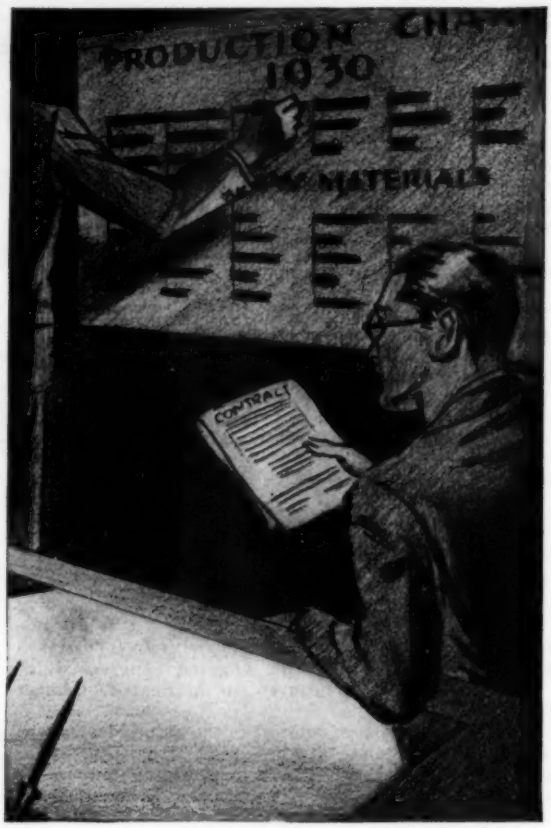
The Western Board Products Co. of Salem has increased its capital stock from $50,000 to $100,000. This company will establish a plant in that city for the manufacture of binder board, friction board, trunk board and the like and will employ about 50 persons. The principal raw material will be flax shives. One of the leaders in the enterprise is F. Puttaert who formerly operated a similar factory using other raw materials in San Francisco. The new plant will be built by L. A. De Guerre, engineer of Wisconsin Rapids, Wis.

The Nyanza Color and Chemical Co. which recently opened a depot in Portland, chose this northwest location because 50 per cent of the dyes used in wool and paper mills on the west coast are used in Oregon, according to T. M. Marshall. The company handles a line of imported colors and is also agent for four large eastern dye and color manufacturing plants.

The Fir-Tex Insulating Board Company's plant is proceeding satisfactorily with the J. F. Shea Construction firm on the job with almost 200 men. The laboratory building is

PROTECT your position in 1930 by a contract with KALBFLEISCH





THOSE who contract with Kalbfleisch for chemicals profit from the provisions assured by a contract . . . and from the features of service associated with the name of Kalbfleisch.

A contract reverses the usual order of things . . . the burden of anticipating plant requirements—and securing them—is lifted from your mind, regularity of shipments is obtained, and as raw material costs are known in advance, prices of finished production are stabilized.

Further advantages are secured by dealing with Kalbfleisch. Standard uniformity of quality, dealings conducted with a responsible organization, foreknowledge that specifications will be rigidly adhered to, regular receipt of supplies upon requisition . . . . are considerations of weight.

Kalbfleisch gives additional value to a contract through ample facilities, accuracy of operations, prompt deliveries, and close study of individual needs.

By all means protect your position in 1930 with a contract for Kalbfleisch Chemicals.

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KALBFLEISCH

farthest along toward completion. The dock is finished, this being 800 feet long with a frontage of 300 feet on Scapoose bay. A railroad spur from the belt line track of the St. Helens Dock and Terminal company is also completed and material will be delivered hereafter over this line. The Bingham Pump Co. of Portland has been awarded contracts for the water and pulp pumps, these pumps being of original design and the first to be installed in a west coast mill. The mill will obtain water from the Columbia river with two vertical type turbines with a capacity of 6,000,000 gallons a day.

Appleton Machine Contracts with Willamette

The Appleton Machine company of Appleton, Wisconsin, has contracted with the Willamette Iron and Steel Works of Portland to manufacture all paper mill equipment which the eastern firm installs on the coast. This announcement was made late in November by Ray Smythe, manager of the Willamette company in telling of some of their late production.

Included in contracts now under way is the manufacture of 56 flat screens for the mill at Port Angeles, Washington, being built by the Olympic Forest Products Co., a Zellerbach subsidiary. The line of paper mill machinery is being handled through the Paper Mill Equipment Co., which has recently sold two 72-inch barkers to the Spaulding Pulp and Paper Co. at Newberg. Capacity of the sawmill is 150,000 feet daily.

The sawmill of the Sitka Spruce Co. at Empire started operations the first week in November. This mill will supply raw material for the new plant of the Sitka Spruce Pulp and Paper Co. adjacent.

CALIFORNIA

J. D. Zellerbach, vice president of the Crown-Zellerbach Corp., A. B. Martin, also vice president, and A. Bankus, of San Francisco, attended a meeting of managers and officials of the company held in Seattle last month.

Walter F. Lane of the Lane Paper company, Los Angeles, announces that his company has moved to 424 Boyd street from the old location at 320 Omar street, retaining the old headquarters for warehouse and storage purposes only.

B. M. Hoblick, recently made manager of the Fresno branch of Blake, Moffitt & Towne, presided at a meeting of Printing House Craftsmen in that city last month, at which time Arthur W. Towne, sales promotion manager of the company gave an illustrated talk on "The Manufacture of Paper."

The plant of the Pacific Coast Pulp & Paper Corp. which is to be built at a location in Butte county, will cost, including equipment, approximately $400,000. The building is to be of reinforced concrete, containing a boiler room, machine room, beater room and other necessary units for the efficient manufacture of paper from rice straw.

The Mosinee Land, Long and Timber Co., Eureka, is making a special grade of kraft paper which has a thread of sisal running through it which is used in connection with a steel screen mesh for cement forms used in construction work instead of wood.

Crown-Willamette Issues Statement

Crown-Willamette Paper Co., a subsidiary of Crown-Zellerbach Corp. reports net earnings totaling $1,900,661, for the six months ended October 31, 1929, after all charges, including depreciation, depletion, bond interest and federal income tax, compared with $1,697,828 for the similar period in 1928 according to report released by Blythe & Co.

Consolidated earnings including its wholly owned subsidiaries and proportionate earnings of Pacific Mills, Ltd., for the six months ended October 31, 1929, amounted to $2,250,219 after all charges, as against $2,196,045 for the similar period in 1928. Crown-Willamette company owns 92.70 per cent of the common and 71 per cent of the preferred stock of the Pacific Mills, Ltd.

Bond interest of the corporation was earned five times while the first preferred dividend requirements at the annual rate of $7 were earned more than three times. The second preferred dividends were earned 12½ times. Balance of earnings after preferred dividends is equivalent to $1.43 per share on the common stock, or at the annual rate of $2.86.

Net profits of the Crown-Willamette Paper company consolidated with its wholly owned subsidiaries and with Pacific Mills, Ltd., for the quarter ended October 31, 1929, amounted to $1,058,294, after all charges, compared with $1,191,926 reported for the first quarter of the current fiscal year ended July 31. Gross profits amounted to $2,476,826. Depreciation totaled $698,992, depletion, $230,086; bond interest $344,124, and United States and Canadian income taxes $149,352. Adjusted minority interests in Pacific Mills, Ltd., amounting to $4,023 were credited.

Net profits of Pacific Mills, for the quarter ended October 31, 1929, were $222,877. For the six months ended October 31, 1929, net profits totaled $353,611, as against $538,460 for the same period in 1928. Reduced earnings of the company were caused by curtailed production during the early part of the year, brought about by extreme water shortage, according to Louis Bloch, president of the Crown-Willamette Paper company and chairman of the Crown-Zellerbach corporation. This plant of the Pacific Mills, Ltd., is now operating at normal capacity, and improvements which will fully take care of any recurrence of power shortage are now nearly completed.

Mr. Bloch stated that the substantial expansion program at the company's plant at Camas, Wash., will bring added facilities for wider operation in December and will be completed in the spring.

Balance sheet as of October 31, 1929, shows a ratio of current assets to current liabilities of 4 to 1.

IDAHO

A pulp plant is under consideration for Priest River, which if built would cost approximately $1,000,000. The town is taking steps to raise $50,000 and a finance committee has been appointed. This announcement followed a survey made by E. C. Nelson, consulting engineer and vice president of the O'Keefe-Orbison Engineering Co. of Appleton, Wisconsin. Nelson S. Coombs of the Fiscal Engineering Co. of Chicago, met with the stockholders of the Pacific States Pulp and Paper Co. at Priest River last month at which time the feasibility of constructing such a plant was considered. Priest River is in the extreme northwest corner of the state near the Washington border.

W. D. Humiston, general manager of the Potlach Lumber Co., Moscow, is taking an active interest in trying to find a way to utilize the waste products in lumber manufacture. Research chemists are giving much attention to this in the laboratory of the company to determine how valuable by-products can be manufactured from this waste. Mr. Humiston states that since over half a tree is wasted in making lumber something should be done to discover profitable ways of eliminating this waste. In making this analysis the Potlach company is working along lines of a number of other northwest companies, some of which are planning to establish or have already established small mills to cut up short lengths for pulp and paper manufacture which are then easily shipped to the pulp mill in the smaller form.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis., announces the appointment of the T. B. Wood's Sons Co., Chambersburg, Pa., as special distributors for Texrope drives. They will carry a large stock of Texrope drives as well as Texrope belts at Chambersburg.

The Messinger Paper Co., Chicago, has been appointed agent for L. L. Brown Paper Company's Resistall Linen Ledger, Resistall Bond and Resistall Index Bristol.

FIRST AGAIN
TIMKEN EQUIPPED BEATERS
NOBLE & WOOD PIONEERED the frictionless bearing Jordan. Now history repeats itself .... Noble & Wood offers a beater completely equipped with Timken anti-friction bearings.
THE ADVANTAGES OF THIS TYPE BEARING in a beater are obvious. Power consumption is reduced tremendously. The roll turns smoothly, freely—always riding absolutely true. Uneven wear on roll bars and bed plates is impossible .... replacement costs are minimized. With all moving contact confined to the bearings, there is no wear on the roll shaft or housings. Lubrication—material and labor—is negligible.
These are mechanical features. And of equally high importance—the Timken equipped beater makes possible a more thorough control of stock manipulation than has ever heretofore been achieved.
Full details are yours for the asking
NOBLE & WOOD COMPANY
MACHINE
Hoosick Falls
New York

Noble & Wood Stress The Importance Of

TIMKEN BEARING EQUIPPED

The high value placed upon the performance of Timken Bearings by Noble and Wood Machine Company, Hoosick Falls, New York, is shown by their current advertisements featuring Timken-equipped paper mill equipment, one of which is reproduced above.

This is typical of the feeling expressed by manufacturers of all types of Timken-equipped machinery in every industry.

They have found in the exclusive combination of Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken steel positive assurance of decreased operating costs, minimized maintenance and extended machine life.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

WISCONSIN

Favorable Forecast for Paper Mills

Arrival of winter has curtailed to some extent the expansion which has characterized the paper industry of Wisconsin for the last seven or eight months. From the production standpoint, however, there have been no bear reports thus far and operations continue practically on a normal basis. It is expected that there will be somewhat of a slump during the holiday period as is generally the case, but the general tendency is to be bullish about the future.

Everywhere there has been an overhauling of obsolete or inefficient plants and machinery. Two or three mills have been abandoned entirely in favor of more modern buildings equipped up to the minute. With the changes and additions in others, the Wisconsin paper corporations are situated to play their part in the keen competition of the day, because they have increased production while at the same time they have reduced manufacturing costs.

One evidence of the favorable condition of the industry is the reports from the Northern Paper Mills, Green Bay, Wis., and its newly acquired subsidiary, the Tuttle Press Co., Appleton, Wis. The former duplicated in November its high sales record for all times in October. The latter reported November as the biggest month in its history for sales volume. An increase in capitalization is contemplated by the Northern through the issuance of $500,000 worth of second preferred stock. The company at the present time has 75,000 shares of common stock of no par value, and $130,000 in first preferred.

Dr. Kress Director of Chemistry Institute

So spontaneous has been the response to the announcement of the establishment of the Institute of Paper Chemistry at Lawrence college, Appleton, Wis., that the plans are being perfected with rapidity. The institute will make its official start in February, 1930, by which time the courses will have been arranged, the laboratories set up and the library organized.

Dr. Otto Kress, recently superintendent of manufacture for the Thilmany Pulp and Paper Co., Kaukauna, Wis., has been engaged as director of the institute. He is prominently known in paper chemistry circles, and is a graduate of Columbia university with the degrees of B. S., M. A., and Ph. D. He was in charge of the pulp and paper section of the United States Forest Products Laboratory, Madison, Wis., for a time, and also was research director for the Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis. During the last year he has conducted his profession privately as a consulting chemist.

In addition to $300,000 subscribed by paper mills of Wisconsin to maintain the institute for five years, anonymous donors have given $15,500 for establishment of the research library and employment of a full time librarian. Another gift announced by Dr. Henry Merritt Wriston, president of the college, is two fellowships of five hundred dollars each annually. These were given by the Paper Makers' Chemical Corporation and will be awarded to students who show suitable qualifications for advanced work in the graduate school.

Enlargement of the Kimberly-Clark Corporation's mill at Kimberly, Wis., continues. Plans have been issued to contractors for an addition to the finishing department, comprising a one story unit 122 by 127 feet in size. The cost will be about $100,000. Allowance is made for additional storage space and shipping facilities, in addition to the equipment to be installed for finishing.

Paper Mill Foresters Speak at Conference

Scientific forestry as practiced by two of the large paper companies of Wisconsin held the forefront at a forestry conference held at Madison, Wis., on Dec. 3. The conference was inspired by the booster program conducted recently at Nekoosa, Wis., by the Nekoosa-Edwards Paper Company and other enthusiasts for tree growing.

M. G. Kilp, forester of the Nekoosa-Edwards Company, and C. G. McClaren, forester of the Tomahawk Kraft Paper Co., Tomahawk, Wis., were among the principal speakers. Each told in detail of the program his company was conducting with the annual planting of thousands of trees so that in time enough pulpwood would be grown to supply the kraft mills for all time. Mr. Kilp dealt principally with planting for pulpwood, and Mr. McClaren with planting for saw logs.

All graduate foresters in Wisconsin and many others were present at the conference, which was called by the state land commissioner. C. L. Harrington, forester of the Wisconsin Conservation Commission, also was on the program.

Concentrated effort is being made by the conservation commission this winter to have lumber and paper companies conduct their logging operations in strict conformity with the principles this body has set forth. One aim is to conduct selective cutting only, leaving immature trees for later harvest. Another important issue is the removal of slash after the cutting has been done. Piles of slash have been considered one of the chief fire hazards and the commission hopes to eliminate large annual losses by its removal hereafter.

Accomplishments of the State in reforestation work are limited because the appropriation to the commission is only $300,000 a year. The value of this activity is being demonstrated, however, and it is believed future legislatures will increase this sum. The large increase in federally owned forests has been one of the fortunate aspects of the situation with respect to the rapidly dwindling supply of timber. About 200,000 acres of land is under timber cultivation by private owners up to this time under the state law which liberalizes the taxation privileges on growing trees.

A record in timber sales was made recently when the Northwest Paper Company, of Cloquet, Minn., was given the right by the Government to cut 42,500,000 board feet of merchantable timber and 308,000 cords of pulpwood on an area of 63,000 acres in the Superior National Forest, located in northern Minnesota. This timber is in the Great Lakes federal forest district.

Mills Active in Safety Work

The best safety news from Wisconsin at this time comes from the Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis. All of its mills, in which 1,135 persons are employed, operated during the entire month of October without a lost time accident anywhere. The company's policy is to educate workers to the value of safety at all times. George W. Mead, president of the company issued a special message of commendation when the record was announced.

Safety education has been more general in Wisconsin this fall than at any previous time. Wisconsin Rapids, Wausau and many other cities joined the ranks this time. The Fox River Valley has been well organized along safety lines for a number of years, but there is no paper mill center which is not now doing something for its workers and the public in general to eliminate accidents.

Wisconsin Rapids winds up its safety school with a big banquet this month at which Capt. Denny P. Upton, of New York City, is to speak. More than 600 have been enrolled, and a like number has been attending sessions at Neenah and Menasha, Wis. Green Bay is emphasizing civic safety. Appleton's school is to be started again after the holidays. The windup of the season's program will come next June, when the annual Fox River Valley Safety Conference will be held at Green Bay, with perhaps 1,500 attending.

Fox River Dam Completed

With the removal of coffer dams recently, one of the largest paper mill dams on the Fox river, located at DePere, becomes entirely a new structure. A season's work by the Government has brought to completion the long spillways on each side of the gates. Concrete now replaces the old wood construction. The dam itself was rebuilt last year, with concrete abutments and steel gates. The water power at this point serves the Nicolet Paper Company and others.

ANOTHER ONE OF THE 47 MANUFACTURERS OF MACHINERY
FOR THE PAPER INDUSTRY THAT USES SKF BEARINGS

PUSEY & JONES CORP.

YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT

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Nothing is apt to cost so much as a bearing that cost so little

SKF Puts the Right Bearing in the Right Place

On the Brute Jobs in the Paper Mill, SKF Bearings Quickly Earn Their Cost

FOR the cone pulley shafts of these units used in a paper machine drive only one bearing was considered good enough to stand the gaff . . . the SKF Spherical Bearing. It wasn't a haphazard guess or a case of saving money. Pusey & Jones wanted to give the mill long-life equipment which would insure uninterrupted performance with the lowest upkeep. *Fifteen years of experience with* SKF Ball and Roller Bearings *had proven them cheapest . . . regardless of first cost.*

On drive units of this type, SKF Spherical Bearings not only make certain of smooth transference of power but they also help to save on this item through the reduction of friction to a negligible quantity. The initial precision of SKF Bearings is not impaired by long service. They are built to stand just such demands without the need of adjustments . . . at any time. It is this factor which plays a vital part in keeping shafts and gears properly aligned at all times. Of course SKF Bearings need some maintenance . . . but this is reduced to supplying fresh lubricant a few times a year.

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Ball and Roller Bearings

Navigation also has closed on the Fox river for the season, bringing to an end the shipment of coal by boat to various paper mills. The mills have a co-operative shipping company known as the Fox River Navigation Company, whose operations were conducted by two tugs and seven barges, bringing coal from the Great Lakes docks at Green Bay, to various points along the river. A total of 183,000 tons of coal was thus shipped to the mills this season.

Some changes have been made at the Flint Paper Company, Milwaukee, Wis., one of the large jobbing companies of the state. Oscar Simpson has become associated with the concern and has been elected its secretary. He formerly was with the Graham Paper Co., St. Louis, Mo., where he spent a number of years. The company has opened a branch office and warehouse at Marinette, Wis., at the northeast extremity of the state and has placed Fred Hofherr, Jr., of Marinette, in charge. The upper peninsula of Michigan also will be served by this branch.

Enlarged office quarters will be provided the Bergstrom Paper Co., Neenah, Wis., through the building of two additions. One extends twenty feet to the rear, and the other ten feet to the side. The interior will be rearranged.

An accident which proved fatal occurred recently at the Thilmany Pulp and Paper Co., Kaukauna, Wis. Elmer Senso, a 19-year-old employee, became caught between the cooling rollers of a wax machine, and was killed instantly when his skull was crushed. Workers were unaware of the situation for several moments, because his associates on the machine were elsewhere after a roll of paper.

Lower freight rates on lime sludge from paper mills are sought by the Mosinee Paper Company, of Mosinee, Wis., and the Nekoosa-Edwards Paper Co., Nekoosa, Wis. The latter company produces 27,000 tons a year and has given away as much as 15,000 tons to farmers for improvement of the soil. The companies contend the farmers are obliged to pay too much when shipment is made by rail, and the railroad commission should take into consideration the conservation value of this cheap source of supply.

William M. Elliott, treasurer of the Menasha Wooden Ware Corporation, Menasha, Wis., died last month. He had been with the company more than 55 years. This company operates a large carton factory.

In this column of the November issue, an item appeared to the effect that the plant of the Union Bag & Paper Corp., Kaukauna, Wis., had been taken over by the Fox River Veneer and Basket Co. THE PAPER INDUSTRY regrets this information was received incorrectly, as it is now advised that the plant in question is one formerly occupied by the Badger Tissue Mills and not the plant of the Union Bag and Paper Corp.

❖ OHIO ❖

Sorg Paper Co. Thirty Years Old

On December 1, the P. A. Sorg Paper Co., celebrated its thirtieth anniversary, which brought to the mind of Miami Valley paper manufacturers the early history of this firm, veteran of the industry in Middletown.

The Sorg Paper Co., is now the parent organization of three linked mills—The Frank Smith Paper Co., the Oglesby Paper Co., and the Sorg interests. It is now recognized one of the largest firms in the business in this section of the state.

The Sorg Paper Co., was purchased by the late Paul J. Sorg as the first business enterprise of his son, Paul Arthur Sorg, also deceased. Into the purchase Mr. Sorg put his determination to make a success of a failing business and the firm today stands as a monument to his acumen.

Turnbull Addresses Superintendents

The Miami Valley Division of the American Pulp and Paper Mill Superintendents Association held its regular monthly meeting on November 30, at Hamilton, Ohio.

D. C. Turnbull of the Dodge Manufacturing Company, Mishawaka, Indiana, made a talk on "Power Transmission." At the request of the chairman, H. T. Randall, Mr. Turnbull included in his talk the history of development of the Dodge organization. This goes back to 1870, when two brothers started in the wood hardware business. Later they were able to induce a few friends to finance a small factory, but owing the the fact that they did not have a great deal of money they had to be very economical. This was true, as the fact remains that they nailed boards together, sawed them round and bored a hole in them for pulleys. The development of this economical thought brought about the wood pulleys, of which five million have been made to date.

The factory started growing from the small start which they had, and in the course of a few years they had a pattern shop, foundry and other equipment. To-day, they manufacture anything of a special nature together with their standard line.

Mr. Turnbull spoke of each kind of drive generally used such as V-belt, worm gear, flat belt, chain, etc., and compared their efficiencies and pointed out faults which they possess. The data which he gave was very interesting.

The next meeting of the Division will be held at the Middletown Y. M. C. A. The date was not definitely set, but will be some time about the middle of January.

The patent of George H. Harvey for a papermaking machine, recently granted to the inventor, has been assigned to the Black Clawson Co., of Hamilton. Mr. Harvey was obliged to wait three years from the time he filed his application until he received his patent for his machine. The report of the commissioner of patents stated that this delay was due to the heavy business of the patent office.

The Franklin Board and Paper Co., Franklin, has recently undergone radical changes and repairs designed to improve the quality of the output of the mill.

The Miami Valley Coated Paper Co., Franklin, will soon undergo extensive improvements at its plant. A part of this improvement, now under way, includes the erection of a large additional building and the installation of improved machinery and equipment.

T. A. Carroll

The friends and associates of T. A. Carroll, advertising manager for E. C. Atkins & Company, Indianapolis, Ind., were shocked by his sudden passing November 18.

Mr. Carroll had been with E. C. Atkins & Co. for sixteen years and was well-known in business circles.

Robert T. Huston

Robert T. Huston, vice president and superintendent of The Connersville Blower Co., Connersville, Ind., passed away suddenly at his home in Connersville, November 14.

Mr. Huston had been connected with the Connersville Blower Company since its organization in 1893. In addition to his interest in building up and maintaining the factory equipment and efficiency, he was active in industrial and community circles.

General Refractories Co., Philadelphia, Pa., has recently appointed the following dealer representatives for its high temperature cement: Pittsburgh district, Harris Pump and Supply Co., Pittsburgh; Philadelphia district, Paxson Taggert Co., Philadelphia, Pa.

Announcement is made that David L. Mackay has been appointed Southern sales agent for Hungerford & Terry, Inc., and the Inversand Company, engineers and manufacturers of water purification plants, filters and water softeners.

It has never lost a tooth

TEXACO Crater Compound is a saver of gears. That is its job—and it handles the job in a remarkable way. It has never lost a tooth through drying out or clogging gears with dirt and dust. There is no other gear lubricant that approaches it for effective lubrication; even under the most difficult conditions.

Texaco Crater Compound has peculiar properties. It is a straight mineral oil without "dope" of any kind. It has the high lubricating efficiency of a straight mineral oil, the exceptional body to resist pressure and the ability to adhere to metal surfaces. It stays fluid, covers the gear teeth permanently, protects and lubricates effectively at high temperatures or low in dust, water, acids or alkalies without deterioration.

Save your gears. Make the test of Texaco Crater Compound in your own plant and see how much cheaper it is to buy effective gear lubrication instead of "oil or grease." Texaco engineers will help you. Write The Texas Company.

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TEXACO LUBRICANTS

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THERE IS A TEXACO LUBRICANT FOR EVERY PURPOSE

Practical Helps for the Mill Man

Metal Traffic Markers Defines Passageways

PASSAGEWAYS in every pulp and paper plant should be kept clear. Pulp, paper, or other materials should never be piled in aisles or passageways to interfere with the free movement of materials and men. Difficulty in keeping such areas clear is frequently experienced because it is always easy to drop materials in the most easily accessible places.

Some paper mills have found it of advantage to paint lines on the floors marking off such areas that are to be kept clear. A white or light colored paint is most commonly used for this purpose. Lines are painted sufficiently wide to insure prominence. Such lines must be properly maintained or much of their value is apt to be lost. Profiting by the experience of a number of municipalities, it seems that such lines might sometimes be more permanently made with monel metal traffic markers. These markers are of a design that will last for years, are rust-proof, and will maintain their appearance indefinitely.

Canvas as a Non-Slip Floor Covering

IN the paper mill and in various other plants wet and slippery floors form one of the most serious hazards. To overcome this, particularly in places where there is much traffic, the Hammermill Paper Company, Erie, Pa., has successfully employed canvas, carefully spread and tacked to the floor. The particular canvas used here is a grade employed for carrying paper around the dryers on the paper machines. It is expensive to purchase new, but after it has been in use some six months or more on paper machines it has little value, except for keeping out drafts or as a floor covering. In the Hammermill plant it is then used for the latter purpose, in runways, and is nailed to the floor with large headed nails, commonly known as roofing nails. As a non-slip covering it lasts about a year, except where there is heavy traffic, when it lasts about half that time.—*National Safety News.*

Mechanical Wood Pulp and Its Properties

THE testing of the properties of a mechanical wood pulp by feeling the same is giving way more and more to numerical evaluation of the same. Freshness, the degree of beating, sedimentation testing, the Schopper, Mullen and the tearing values afford valuable information. The study of the form in which the wood cells are found in the pulp is at least as important as these tests. In order to determine the degree of separation into fibers of the wood, the pulp is divided into different groups of fibers, whereat each group consists of fibers of as like character as possible. Hawkins has used the method of fractional screening on screens numbers 20 to 200. The proportion of actual fiber in the pulp is a most interesting property. The latter gives the high finish to newsprint.

A curve diagram shows the relation between the height of the vacuum in the paper machine suction boxes or in the suction rolls and the content of actual fiber in the pulp. The Norwegian committee of paper technologists concerned with mechanical wood pulp used a modified Hurum testing device for determining the actual content of fiber in the pulp. This apparatus is described. When different sizes of screens are used and different periods of washing the pulp with water, the proportion of "meal" in the pulp as distinguished from the uninjured fibers can be determined in a few minutes. As the proportion of meal in the wood pulp increases, the degree of beating and the strength of the pulp increase.

In admixture with unbeaten chemical pulp, the mixture attains strengths, which are greater than the actual strengths of the mechanical wood pulp and the chemical pulp. After the meal has been completely separated from the fibers and after the meal has been mixed with a certain percentage of chemical pulp and a like mixture of chemical and mechanical wood pulp, it is found that the improvement in the strength of the mechanical wood pulp and the chemical wood pulp must be assigned only to the meal. The results that are obtained in this investigation concerning the so-called meal are very important in affording a better explanation of the grinding process. P. Klem, Papir-Jouralen, 17, pages 73ff, year 1929.

Coloring Silk Paper with Acid Dyestuffs

TESTS have shown that it is possible to dye silk paper and crepe paper and the like with many acid dyestuffs by the addition of aluminum acetate to the dye bath so that the color is fast to water. The ordinary dipping process is used, and after dyeing, the paper is pressed and dried. Care should be taken that a lake is not formed in the dye bath, as lakes formed from acid dyestuffs with the aid of aluminum salts are not suitable for dyeing paper. Hence the amount of aluminum acetate must be sufficient but not in excess, so that the dyestuff is fixed on the paper fibers but not precipitated in the bath. The composition of the dye bath as worked out by the author in his experiments is as follows:

One thousand cc. of dyestuff solution, ten grams of dyestuff per liter and four hundred cc. of aluminum acetate, five per cent concentration. The aluminum acetate solution is made by dissolving 240 grams of lead acetate and 163 grams of aluminum sulphate in one liter of water. The lead sulphate precipitate is removed and the filtrate made up to a volume of two liters by the addition of water. Dr. A. Landolt, Der Papierfabrikant, 1929, 357.

Cost Association Elects New President

Ralph B. Hersey, in charge of the cost department of Hollingsworth & Vose Company, of Boston, Mass., was on November 1, elected president of the Cost Association of the Paper Industry to take office immediately and serve during the year 1930.

Mr. Hersey is a New Englander, having been born in Dorchester, Mass., and educated in Boston, where he was graduated from the Boston High School of Commerce in June, 1915. In February, 1916, he was employed by Robert W. Lennox, treasurer of the Hollingsworth & Vose Company. He became head of the cost department of the Hollingsworth & Vose Company in 1920 and since then the cost system in operation at the East Walpole and West Groton Mills of the company has been materially changed and improved.

In accepting the presidency of the Cost Association, Mr. Hersey said he did so in the hope that he would receive the fullest co-operation and help from all of its members. He added the hope that the association would be successful in bringing about a greater degree of uniformity in the accounting procedure in use in the different groups in the pulp and paper industry.

Mr. Hersey is an enthusiastic believer in the value of the educational work the Cost Association is doing in the industry and for many years has been a regular attendant at all cost conventions, being accompanied invariably by at least one of his assistants.

Since 1925, orders and re-orders for Briner Economizers have accompanied each important expansion of Fraser Companies developments at the great Madawaska mill. This equipment has been specified for sulphite bond machines, book paper machines, board and catalog machines. For one after another of each type of machine, the Briner Economizer has been continuously specified.

Six machines already equipped, and the seventh now being completed,—and most satisfactory results being attained on all four classes of machines. Only an enviable record of results secured could justify such confidence as is reflected in this program that we have been privileged to carry out for this noted paper making organization,—one of the most progressive and successful in the entire industry.

There can be no more convincing proof of the merit of this organization's methods of designing, manufacturing and installing paper mill heating and ventilating equipment than this enviable record at Madawaska.

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Canadian News

Bright Prospects for Increased Newsprint Price

Premiers Ferguson and Taschereau recently held another conference in Montreal. While this was in regard to the development of the Chats and Carillon power developments on the Ottawa River, the newsprint situation was incidentally mentioned and discussed. Mr. Taschereau, in a subsequent interview, stated that both he and Mr. Ferguson were of the same mind in not wishing to enact legislation to control the price of newsprint; but as in both provinces the greatest amount of the wood for newsprint comes from Crown lands, it is the duty of the governments to see that they get fair returns from the forests, and both premiers are asking the newsprint manufacturers to discuss matters and see if it is possible to have a better price. While the companies would probably be satisfied with $60 a ton, some of them have contracts at $55 which yet have a long time to run.

On being asked if Quebec had the power to intervene in the situation, the Premier replied lightly, "We can do almost anything, but we do not want to make the price of paper, for when a government intervenes to fix the price of merchandise it does not succeed generally. But in this case be it remembered that the paper is made with our wood, and if they want to cut down the wood of the Province, the Province has a right to see that the workmen and the Canadians who have placed their money in these enterprises shall have a fair return for their money and labor. If Ontario and Quebec do not get fair returns for their forest wealth, we will have to do something, but what that something will be we will have to decide later on. Before taking a hand in the matter, however, we wish to give our point of view.

"There is one feature that I do not want to overlook. If some concerns are driven out of business because they can not get an adequate return for their product, the newspaper publishers should not overlook the fact that the result will be a big trust and combine, and in the near future they will have to pay more than they expect, and it is well for them that the price be stabilized so that they will know where they stand."

The viewpoint of International Paper Co., which seems to be the storm center at the present time, was given out in an interview in Montreal by President A. R. Graustein a few days ago. He stated that he and his organization had always held a sympathetic Canadian point of view and deprecated the suggestion made in some quarters that the company was catering to United States interests. While recognizing that the price of newsprint at $55 a ton is too low, the company did not think that this was a good time to raise the price; but as there is so widespread a feeling in Canada that the price should be raised at this time, the company, as owners of Canadian mills, desires to do all in its power to meet this Canadian sentiment. When asked about the fact that International's Canadian mills are operating at a ratio higher than other Canadian mills, Mr. Graustein pointed out that consideration should be given to the sharp curtailment of the output of the company's mills in the United States, which would more than make up the difference that exists at present between the output of the company's Canadian mills and those of other Canadian companies.

A wire has been sent to all of International Paper's newsprint customers asking thirty days in which to prepare contracts for next year, the extension of time being necessary to allow further study of the problems involving a difficult situation.

Newsprint mills in Canada set up a new high record for production in the month of October when the total output amounted to 251,014 tons. The previous high record was in May of this year, when the production amounted to 245,644 tons. During the first ten months of the year, Canadian mills have produced 2,245,795 tons, which is an increase of 15 per cent over the first ten months of 1928. During October, the Canadian mills turned out more than twice as much newsprint as the United States mills, and operated at 88.8 per cent of their rated capacity, as compared with 80.4 per cent for the United States mills and 112.0 per cent for the Newfoundland mills.

Woodlands and Technical Sections to Hold Separate Meetings

In order to accommodate members belonging to both sections, the Technical and Woodlands Sections of the Canadian Pulp and Paper Association will hold their annual meetings on different days. The Technical Section will hold a two-days' meeting on Wednesday and Thursday January 29th and 30th next, the meeting room of the Engineering Institute of Canada having been engaged for the meetings to provide sufficient accommodation and avoid the over-crowding of past years. This year's program will center on the topic "Manufacturing Methods in Pulp Mills." The first day will be devoted to Mechanical Pulp under the direction of a committee of which D. L. McLeod is chairman; the second day, to Sulphite Pulp, under the direction of a committee of which O. F. Bryant is chairman.

The annual meeting of the Woodlands Section will be held on Monday and Tuesday January 27th and 28th, in the lecture room of the Cellulose Research Institute. Only members of the Section and other representatives of the woods departments of the member companies will attend the meetings on Monday and on Tuesday morning, while an open meeting will be held on Tuesday afternoon.

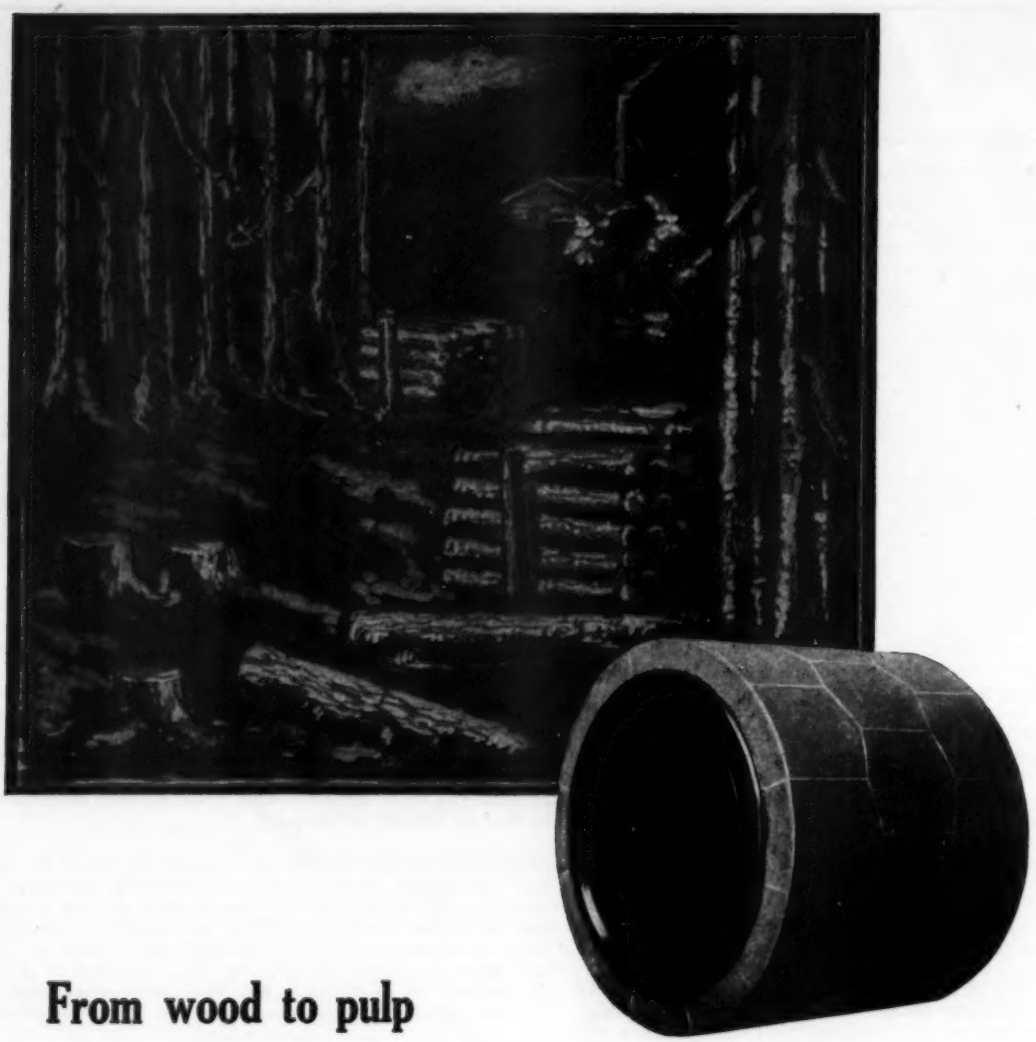
Although Sweden has the best wood in the world for pulp, she has not yet found a way of producing newsprint as cheaply as it is produced in this country, and an engineer who is familiar with the methods of manufacture employed here can secure a position in Swedish paper mills at twice the salary he would otherwise be paid, according to Erland Stahlnacke, of Stockholm. Mr. Stahlnacke will spend six months studying the processes used in the Canadian mills.

There has been a slight falling off in orders for book papers in Canada of late, and it is pointed out that the Minister of National Revenue has now cancelled the privilege in virtue of which exporters in other countries have hitherto been permitted to sell their goods in Canada at 5 per cent less than the sales price in the country of origin, without the dumping duty applying. The cancellation of this privilege should prove of some advantage to Canadian manufacturers of book papers. It has been contended that the book paper industry lacks that adequate tariff protection for which it has been striving for sometime past.

St. Lawrence Route Economical

The Consolidated Paper Co., of Toledo, Ohio, recently received a shipment of Scandinavian pulp by all-water route, with transshipment to two smaller boats at Montreal. The company has authorized the statement that by using this route, even with transshipment at Montreal, a saving of nearly $1000 was effected on the cargo of even one of the two smaller shipments into which the main cargo was divided.

At present the largest cargo that can go through the St. Lawrence canals is 2500 tons; but when the waterway is deepened, cargoes of 10,000 and 15,000 tons will be able to pass in either direction without breaking bulk. The saving of between 50 cents and $1 a ton effected to-day with a relay of vessels will be greatly increased when through cargoes can pass between the heart of the North American continent and the other great continents.



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continuously, uniformly—
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Refractories - Floor
and Stair Tiles

Good Markets for Canadian Paper in Far East

Several import houses in Hong Kong have recently approached the Canadian Trade Commissioner's office with reference to the possibility of establishing agency or buying connections with Canadian paper manufacturers. Most of these firms have considerable experience in the paper trade, and are now interested in Canadian business on account of the favorable quality and price of these goods. On account of the volume of trade in newsprint and kraft wrappings, more requests have been received for these types than for others but bonds and writings, waxed and other special wrapping papers have also been specified.

W. J. Riddiford, Assistant Canadian Trade Commissioner in Shanghai, has also written that there is considerable market for waste paper in Central and Northern China. Approximately $3,000,000 worth of this commodity was shipped from the United States during 1928, practically all of which was sent to the Orient. Old newsprint comprises almost all of the waste paper shipped.

Canadian Trade Commissioner A. B. Muddiman, whose territory includes Italy, Spain, Portugal, Gibraltar, the Canary Islands, Malta, Albania, Jugoslavia and Cyprus, spent a few days in Montreal recently conferring with commercial interests. Among those interviewed were Secretary Edward Beck, of the Canadian Pulp and Paper Association, and A. L. Dawe, of the St. Maurice Paper Sales Co., Ltd. Mr. Muddiman said there is a considerable demand for Canadian sulphite pulp in both Spain and Italy, and that if there are any Canadian producers looking for a market in those countries he will be pleased to put them in the way of making desirable connections.

The idea that Mr. Hearst may actually be pressing the project for a new newsprint mill of 1000 tons daily capacity somewhere on the east coast of Newfoundland persists in Montreal. It may be said that the increased belief in the validity of the news is shown from week to week. Now it is said that the project is before the Newfoundland government, coupled with a request that the government sell 10,000,000 cords of Labrador pulpwood to the Hearst interests. Since it is known that the government is anxious to foster any industry which may increase its revenues, there is thought to be a certain amount of credibility due the constant rumors.

Teijiro Inouye, president of the Rengo Corrugated Paper Manufacturing Co., of Kawasaki, Japan, was a recent visitor to various paper centers in Canada. He was a member of the first party of the American Prosperity Inspection party, organized by the Japanese Industrial Rationalization Federation to visit this country. The object of the delegation's visit is to inspect industries on the Pacific Coast and elsewhere in Canada. Mr. Inouye represents the Japanese paper and cardboard manufacturing industry.

◆ QUEBEC ◆

Canadian Paperboard Operating at Capacity

Increasing production and the likelihood of advanced prices hold forth good prospects that Canadian Paperboard Co. will show an improvement in earnings for the current fiscal year, which ends March 31st, next. Last year the company had heavy expenses in connection with the establishment of its new plant at Toronto, Ont. Net earnings, however, amounting to $174,088, were only $24,000 less than in the previous year. There was no dividend paid on the common, but a larger amount was written off for discount, while a balance of $20,321 was carried forward into the profit and loss account, which now stand at $104,674 after adjustments. The new Toronto mill was first turned over in October 1928, but it was only toward the end of March last that it began to produce paper at the anticipated rate and with the expected economies.

Operations during the current year have been on an im-

"Columbian Paper" calls on Kellogg for three additional digesters

SUCCESSFUL operating performance of present Kellogg equipment, again dictates the choice of Kellogg digesters for additional capacity. In this case, three forge and hammer lap welded stationary units have been specified.

Each of these Kellogg forge and hammer lap welded, stationary digesters is 90 inches inside diameter, by 1 inch thick by 26 feet long, over the heads. The heads are 1 and ⅛ inches thick. Designed for a working pressure of 177 lbs. per square inch, with a liberal allowance for erosion, these Kellogg digesters are tested at 300 lbs.

Kellogg digesters, and other pressure vessels, are free from cold working strains, and will not deteriorate from caustic attack. Superior to riveted units, Kellogg forge and hammer lap welded digesters provide greater safety, longer life and exceptional economy.

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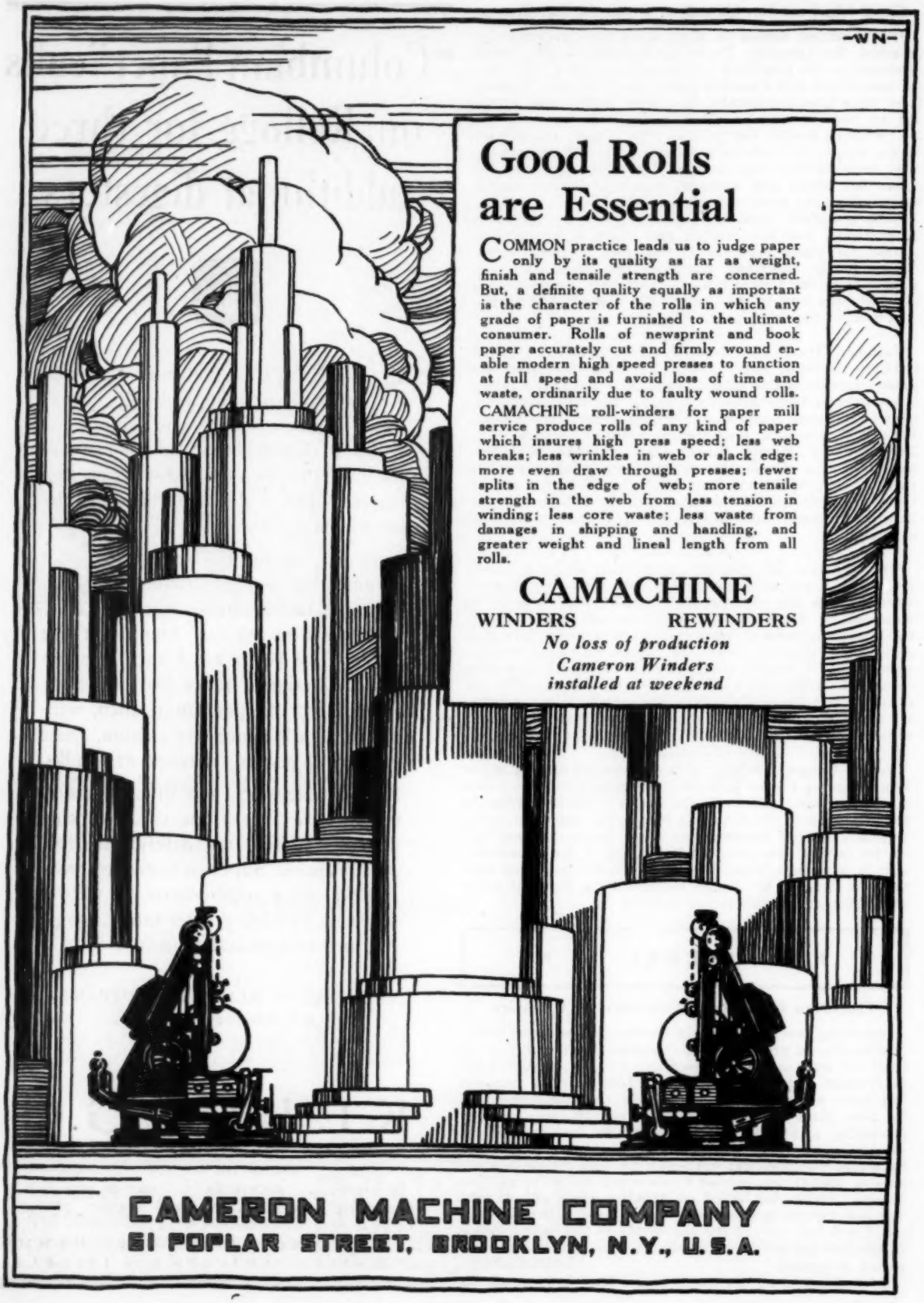
FORGE AND HAMMER LAP WELDED AUTOCLAVES ... BOILER DRUMS ... DIGESTERS ... HEADERS ... RECEIVERS ... SEPARATORS ... FLANGED JOINTS ... CENTRAL STATION PIPING

ALL KELLOGG FORGE AND HAMMER LAP WELDED PRODUCTS ARE INSURABLE



Good Rolls are Essential

COMMON practice leads us to judge paper only by its quality as far as weight, finish and tensile strength are concerned. But, a definite quality equally as important is the character of the rolls in which any grade of paper is furnished to the ultimate consumer. Rolls of newsprint and book paper accurately cut and firmly wound enable modern high speed presses to function at full speed and avoid loss of time and waste, ordinarily due to faulty wound rolls.

CAMACHINE roll-winders for paper mill service produce rolls of any kind of paper which insures high press speed; less web breaks; less wrinkles in web or slack edge; more even draw through presses; fewer splits in the edge of web; more tensile strength in the web from less tension in winding; less core waste; less waste from damages in shipping and handling, and greater weight and lineal length from all rolls.

CAMACHINE

WINDERS REWINDERS

No loss of production

Cameron Winders installed at weekend

CAMERON MACHINE COMPANY

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proved cost basis. Production has suffered somewhat owing to overproduction in the paperboard industry, while prices were lower. The matter of making the supply more closely approximate demand has been satisfactorily settled, which has resulted in an improvement of operations. During September, plant operations were carried on 20 days. October was a better month and the mills operated for 23 days. November operations were practically full time, and the outlook for the balance of the year is considered favorable.

As regards price, the situation has not been altogether favorable this year. It is understood, however, that with the beginning of the new year prices will be on a better basis and will allow of improved earnings.

Exhaustion of Forests Not in Sight

Commenting on a recent statement by Sir George Courthope, British industrialist, before the House of Commons, to the effect that Canada would barely supply timber needs in thirty years time, officials of the provincial Department of Lands and Forests state emphatically that such an estimate could not be applied to the province of Quebec. Leading the Dominion from a standpoint of forest industries and amount of capital invested therein, Quebec has enormous resources of timber and pulpwood, it was explained, and due to the conservation policy of the Department of Lands and Forests there was no reason to believe that the serious situation predicted by Sir George will materialize, it was stated.

Defining Quebec's position in regard to timber supply, G. C. Piché, director of the Provincial Forest Service, stated: "Experts of the Quebec Forest Service cannot predict any limit on the duration of forest resources, since they have not in their possession all the elements to enable them to make such a prediction. But, knowing the progress made every year where more territory has been placed under control, where the cut is limited to the annual increment, and knowing that the vast regions not under license contain very large quantities of timber, they believe that in thirty years time the forests of Quebec will not only produce as much timber as at present, but much more.

"By maintaining and extending the same efficiency that now exists along the lines of fire prevention, salvaging immediately all timber on sections affected by fires, insects and fungi, by using mature and over-mature forests first, by eventually thinning young forests, and by a vigorous policy of reforestation, any such crisis as predicted by Sir George Courthope will be avoided. As forest conditions in the province of Quebec are better from a standpoint of tree growth than in many countries of Europe which now yield several hundred board feet per acre annually, there is no occasion for alarm on this matter," said Mr. Piché.

Action for $66,264, instituted by Julien E. A. Dubuc, M. P. for Chicoutimi, against the Saguenay Pulp and Power Co., in liquidation, for alleged services rendered, was dismissed in Superior Court by Mr. Justice Phillippe Demers, who held that Mr. Dubuc's services to the company ceased on March 11; 1926, and that he could not claim remuneration for possible benefits resulting from past services.

Last month, J. H. Price, president of Price Bros. and Co., officiated at the laying of the corner stone of the new seventeen-story head office building which the company is erecting in Quebec City. The ceremony was carried out in presence of a large assembly of representative citizens. Already steel construction has been carried to the fifteenth story, and the building is expected to be completed in June or July next.

One of the chief advantages that is looked for as a result of the merger of Wayagamack, Port Alfred and Canada Power and Paper will be in connection with the handling of the pulpwood that is floated down the St. Maurice River. Four of the five units that will be comprised in future under Canada Power and Paper Corp., namely, St. Maurice, Belgo, Laurentide and Wayagamack, receive a large portion of their pulpwood supplies through the St. Maurice River and its

ASHCROFT
PAPER TESTER

A mechanical instrument for quickly determining the bursting strength of paper. It enables the buyer and user to make an accurate test of any kind of paper. The bursting strength is indicated on the dial in pounds per square inch.

Don't be misled by the usual "tear" test. Two samples of paper which "seem" alike may vary from 5 to 10 pounds in strength on the Ashcroft Paper Tester. Every printer and user of paper should have one.

Price—$40.00.

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ASHCROFT PAPER
THICKNESS GAUGE

For measuring the thickness of paper, cardboard, blotting paper, rubber, felt, cloth and other thin sheet materials. Widely used for many years among printers, paper manufacturers and dealers.

An accurate, precision instrument reading to thousandths of an inch. In testing a coated enamel paper, for instance, the difference between 80 lb., 90 lb. and 100 lb. stock is immediately apparent.

Price—$15.00 . . . Special discounts to Jobbers.

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Bridgeport, Conn.

Subsidiary of Manning, Maxwell & Moore, Inc.

AMERICAN
INSTRUMENTS
SINCE 1851

WHEN IT STANDS UP HERE IT WILL STAND UP ANYWHERE!

This, one of the plants of the country's largest ready mixed concrete makers, employs NITROSE to defeat the action of alkalis on all metal work. Alkalis that break down ordinary paints are conquered here with NITROSE.

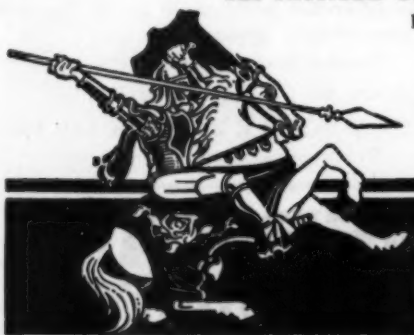
NITROSE will conquer your inside and outside corrosive problems—whether from heat, rust, grease, gas, chemicals, acid fumes, brine solutions, salt sprays, ammonia or alkalis.

NITROSE goes right down into the bare metal, through moisture, oil, rust—and welds itself into a coating of protection on all metal parts. Always elastic—expands and contracts with the temperature of the surfaces, with no cracking or peeling. Needs no primer, cleaner, scraping or sand blasting—wire brushing loose scale is all the necessary preparation.

NITROSE insures longer protection than any paint you can buy—it holds first place of economy in all industries where corrosion wrecks equipment and hampers profits.

Not merely a slogan — but the plain truth — "NITROSE is the liquid armor that corrosion can not eat." Users will tell you, it may cost a trifle more to buy—but it costs a great deal less to use.

The NITROSE Company, 1500E Peoria Life Bldg.
PEORIA, ILLINOIS



Write for descriptive folder. See how NITROSE conquers corrosion in all types of industry.

IMMEDIATE SHIPMENT

in 5, 10, 30 and 55 gallon steel containers from

The Nitrose Company, Peoria, Ill.; Vincent-Gilson, Engr. Co., 30 Church St., New York, N. Y.; D. B. McConnell, 216 Coe Terminal Bldg., Detroit, Mich.; Uhrich Supply Co., 914 Central St., Kansas City, Mo.; Lew Sales & Engr. Co., 220 Mt. Hope, Rochester, N. Y.; Geo. W. Elspass, 412 Auditorium Bldg., Cleveland, Ohio; C. L. Williamson, 303 Alaska Bldg., Seattle, Wash.; Day Sales Co., Monadnock Bldg., San Francisco, Calif.; Robt. M. Hartwell Co., Inc., 353 E. Second St., Los Angeles, Calif.; Beverage Supply Co., Ltd., 700 St. Paul St., West Montreal, Que., Can.; Consulting Engineering Co., 313 Carson St., Pittsburgh, Pa.; Robinson, Cary and Sands Co., St. Paul, Minn.; Merritt M. Stone Co., 4459 Manchester Ave., St. Louis, Missouri; Roberto Colon, San Juan, Porto Rico.

NITROSE

tributaries. When Laurentide was merged with the St. Maurice Valley Corp. a considerable saving was effected in the cost of sorting out the logs for three of the mills. There still remained a considerable expense in apportioning the cuts of St. Maurice and Wayagamack at the foot of the river. This will now be saved with the four mills operating under unified management.

Detailed inventory of 1800 square miles of timber limits situated in the Manicouagan area, Quebec, 200 miles down the St. Lawrence from Quebec City, is to be made by the Ontario Pulp and Paper Co. Paul Provencher, of Three-Rivers, will use 40 men and dog teams in the work which is expected to occupy seven months.

International Paper and Power Securities, a new subsidiary of the International Paper and Power Co., has been incorporated with a Quebec charter, the head office to be in Montreal. The charter covers a wide field, the company being empowered to transact all ordinary forms of business. Capital of the company amounts to $10,000, divided into 1,000 shares of a par value of $10 each.

To take over a position as superintendent of the Anglo-Canadian Pulp and Paper Mills, at Quebec City, D. R. Piper, Fort William, Ont., has gone to Quebec. Mr. Piper had been associated with the Fort William plant of Abitibi since the starting up of the mill some years ago. During the shut down, earlier this year, he obtained employment with the Quebec mill, but went back to Fort William when operations were started up last spring. He was assistant superintendent at the Fort William mill.

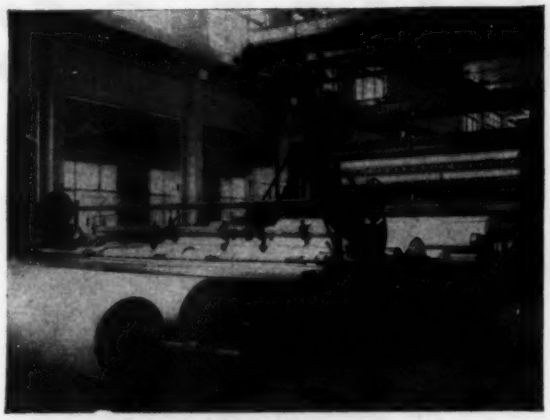
R. A. McInnis, vice president and general manager of Anglo-Canadian Pulp and Paper Mills, has returned from a trip to England. His business abroad, it is understood, had to do with certain developments in connection with the Anglo-Canadian mill and that operated at Grand Falls, Newfoundland. Lord Rothermere, of London, holds a very large interest in both companies. G. H. Bridge, secretary-treasurer of Anglo-Canadian, also recently returned from England where he had spent some weeks.

Donnacona is reported to be producing over 100 tons of sulphite daily, the extra production being needed for the new machines at the Riverbend mill of Price Bros. and Co. The Donnacona mill is also busy on the manufacture of wallboard, a new product for this mill which is expected to be a valuable addition to earning power. Work is scheduled to commence in the spring on a new wharf to be built by the company and the government which will give adequate shipping facilities to the plant.

Frank Thorn, sales manager of Price Bros., after his convalescence from an operation for appendicitis, has left for a trip to the old country, and will be away about a month or six weeks. His duties, during his absence will be looked after by S. Harvey Smith, who left the St. Maurice Paper sales to join Price Bros. a few weeks ago.

The extra-mural relations department of McGill University, Montreal, has under consideration a course of lectures on vocational education, especially applicable to paper mills. If put into action, it is probable that Prof. Leslie R. Thomson will be given charge of the course. It is understood that the Spruce Falls Power and Paper Co., at Kapuskasing, Ont., is the first company to signify its desire for such a course.

Edward Beck and E. A. Cadman, of the Canadian Pulp and Paper Association, visited St. Andrews East sometime ago to view possible sites for the proposed memorial of the first Canadian paper mill, which was established in 1803. Some years ago the Technical Section of the Association went to Ottawa on a similar mission, the only visible result of which was that a section of a log once forming a part of the old mill dam was dug out of the river and a clock case made



Takes cleaning out of the "Hit or miss" class

CLEANING in paper mills was not always the scientific, efficient procedure that it now is with OAKITE materials and methods. Haphazard practices and the use of inferior materials kept this essential production operation in the "hit or miss" class.

Now, with OAKITE materials and methods, you can relieve cleaning of every handicap; put it on a basis of highest efficiency. For OAKITE cleaning is rapid, thorough, and economical. OAKITE materials can be depended on to clean felts, wires, cylinders, screens, sieve cloths and similar equipment quickly, with little effort, and at low cost.

Call in our nearest Service Man and ask him to prove that OAKITE will save you money and give you better cleaning. A card to us will bring him. No obligation of course.

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In Black Liquor Recovery

Quadruple Effect Horizontal Tube Natural Circulation Evaporator Handling Pulp Mill Black Liquor.

Eliminate the interruptions for cleaning and repair which cut down production. Shutdowns for repairs are few if you have a Swenson Evaporator—and when they are necessary, our construction makes maintenance easy.

Swenson units are unusually large—proportioned to produce rapid circulation, which eliminates foaming troubles. Castings of either iron or steel are made in our own foundry. Our welders are specialists in producing chemical-resistant welds. The result is a ruggedly built evaporator that will outlast the ordinary type.

Swenson Forced Circulation Evaporator

Pulp mills that are now using the Swenson Forced Circulation Evaporator for handling black liquor, find it has the rugged construction found in the Swenson natural circulation evaporators—plus greater steam economy, ability to handle viscous liquors at high density and freedom from entrainment.

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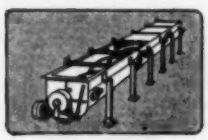
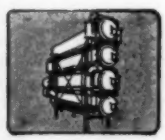


CONTINUOUS CRYSTALLIZERS



YARYAN EVAPORATORS

from it which was fitted with works by Birks and the clock presented to the late John R. Booth. Since the National Parks Commission is interested in the renewed movement, it is likely that something definite will come out of it.

The Puget Sound Pulp and Timber Co. has ordered from Paper Machinery, Ltd., Montreal, two large K. M. W. pulp drying machines, for bleached pulp. These machines will be the first of their kind to be installed on the Pacific Coast. The machines are of a new design and include several new features, such as patented rotary suction boxes, special high pressure felt presses, Sylwan's positive condensed water systems, etc., all of which make it possible to handle the stock and the pulp in the most perfect and economical manner for producing the highest quality of pulp.

ONTARIO

Meeting of Eastern Safety Group

The Eastern group of the Ontario Pulp and Paper Makers' Safety Association held a well attended meeting in the board room of the J. R. Booth Co., at Ottawa, last month, under the chairmanship of A. N. Wismer, of Provincial Paper, Ltd., Mille Roches, Ont. Delegates representing paper mills at Mille Roches, Cornwall, Hawkesbury and Ottawa were present, and the accident records of the various mills were under spirited discussion.

The annual contest of the association was considered and commended, and the standing of the various companies analyzed. Classes in first aid were also under consideration and the opinion freely expressed that it was unfair that a greater number of mills did not enter into the spirit of the contests. As one of the delegates stated during his address: "The benefits to be derived therefrom are not confined to the mills or the personnel thereof, but the fact that men and women in the paper companies are trained in first aid work means that there are citizens available in the mill towns who can, on occasion, render first aid work in the event of an accident on the street or elsewhere. This makes for good and intelligent citizenship."

Major A. A. Mulholland, Dominion Government representative on the Toronto Board of Harbor Commissioners and owner of the Northumberland Paper Co., with mill at Campbellford, Ont., now a unit of the Canadian Paperboard Co., died at his residence near Toronto, last month, after a protracted illness. The deceased was a well-known and popular figure in Toronto and Dominion industrial affairs. He had reached a high place in the commercial life of the country, but of late years his principal concerns were the Toronto harbor and the farm on which he died and where he was born 69 years ago.

M. H. Jones, who for the past two years had been resident engineer of the Great Lakes Paper Co., at Fort William, and formerly associated with Canadian Car and Foundry Co. and with Port Arthur Shipbuilding Co., left recently for Montreal where he has taken a position as chief engineer to the Ontario Paper Co. The latter is establishing a large power development on the lower St. Lawrence and expects to ultimately erect a large newsprint mill. Previous to his departure, Mr. Jones was presented by the staff employees of Backus-Brooks Co. and department heads of the Great Lakes Co. with a handsome set of pipes and an appreciative address.

With the completion of the new head office building of Provincial Paper, Ltd., on University Avenue, Toronto, three paper firms are now located in new quarters. Provincial has the whole of the second floor in the fine new building, and Interlake Tissue Mills, Ltd., have nearly half of the ground floor, while the Don Valley Paper Co. also has space on the ground floor. The new head office building of the Abitibi

A Warren Stuff Pump will do this—

—move 6% clean stock smoothly, efficiently and without clogging.

—move heavy stock *quickly*. In an eastern mill a Warren Pump filled a 1400 pound beater with 5% stock in 1 minute 20 seconds.

—maintain its original efficiency over a long period of time, due to easily renewable case liners which insure a close running clearance between the impellers and sides at all times.

If you are looking for stock handling equipment that will give steady, dependable operation under the hardest kind of service, investigate Warren Stuff Pumps. Bulletins or estimates?

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3524

"Go West, young man, Go West."

SO spoke Horace Greeley just about the time that Asa Shuler and J. W. Benninghofen formed a partnership for the manufacture of paper making felts in 1858.

Hamilton, Ohio, where this business was founded was the West that Greeley spoke of. It was the West of those days. Today it is more than 100 miles east of the center of population.

The grandsons of those two men are still making felts, now known as Hamilton Felts.

Three generations of experience! It is this experience that marks the difference between ordinary felts and Hamilton Felts. It is this experience that determines what a Hamilton Felt should be.

Naturally the result is a better felt—one that has the proper strength in combination with great water removing qualities, that is going to produce more and better tonnage, that is going to save in steam and overhead costs, that's going to wear longer, that requires less down time for washing, that will make money for you.

Try *one* Hamilton Felt. There is one to fit your individual needs exactly. Give it every test of use and performance you think a felt ought to have. Then put Hamilton Felts on all your machines.

Hamilton Felts are marked by two blue lines full width of the felt and by one shorter blue line midway between them.

Ask the Hamilton Felt man—a practical felt man who knows paper making as well as making felts to fit individual mill conditions. Most likely he calls on you regularly. If you prefer, write us direct.

Shuler & Benninghofen, Hamilton, Ohio

Miami Woolen Mills

ESTABLISHED 1858

Hamilton Felts

Power and Paper Co., adjoining the Provincial Paper Building, is fast nearing completion, and the end of the present year should see the staff in the new premises.

Investigate Coal Supply for Paper Mills

The Ontario Research Foundation, recently sponsored by the Ontario government, will have as one of its first tasks the investigation of the economic possibilities of the lignite discoveries which have been proved by diamond drilling in the area adjacent the banks of the Abitibi River north of Cochrane. Already, it is stated, the research facilities of this organization have been directed towards finding uses for the product apart from those already known. The importance of the discovery is also emphasized by the fact that the Spruce Falls Power and Paper Co. has requested the government to provide it with the first carload of lignite that comes out of Blacksmith Rapids, in order to test its use at its plant at Kapuskasing. For some years the Abitibi Power and Paper Co. has also been keenly interested in the possibilities of lignite deposits and held extensive territory in the vicinity of the government's operations. Considerable experimental work has been done by H. L. Sanborn, manager of the Abitibi Power Development Co., a subsidiary of Abitibi Power and Paper, operating the power development plant of the company at Island Falls.

Meanwhile, every effort is being put forward to complete the construction of a road from Mileage 96½, on the Temiskaming and Northern Ontario Railway, into Blacksmith Rapids, so as to have camps completed and the working crews fully housed before winter sets in. It is expected the road will be completed and the men under camp cover in December. It is interesting to note that, instead of the usual wood heaters, stoves are being put in the camps with the idea of utilizing the lignite for fuel purposes throughout the winter. It is also possible that the lignite may be used for fuel under the boilers to supply steam power for sinking operations.

Camp Borden to be Forest Nursery

It is reported that negotiations are under way whereby the Ontario government will acquire Camp Borden from the Ottawa authorities for the purpose of reforestation. The camp, which approximates some 30,000 acres, will, it is stated be turned over to the government immediately after the Royal Canadian Air Force shifts its home and activities to the new base at Trenton.

With the Midhurst unit of the Ontario Forest Stations close at hand, the Borden site could be easily fed at all times. Originally, Camp Borden was an excellent pine country, which was cut over years ago. The Ontario government is said to have looked upon it for years as an ideal location in which to practice the extensive reforestation work that the legislation of 1929 calls for.

There is also some talk, although unconfirmed, that the government, if it gets control of the camp, will utilize part of it for the Provincial Air Force. While all machines of this force at present are either hydroplanes or equipped with pontoons, the time may come when the ever-increasing mapping, sketching and tree-dusting work that is being carried on in the older sections of the province may call for a complement of land aircraft. If this situation should eventually come about, no better headquarters than Camp Borden could be selected.

Rearrangement of Moore and Burt Companies

The directors of the F. N. Burt Co., Ltd., Toronto, have reached an agreement with Moore Corp., Ltd., whereby the Canadian sales book and form department of F. N. Burt Co. will be taken over by Moore Corp. A special meeting of F. N. Burt shareholders will be held December 11 to ratify the agreement.

The proposal to transfer this part of the F. N. Burt business was first put forward at the annual meeting in April. Moore Corp. is offering in exchange both preferred and common shares of Moore Corp., the number of shares being de-

ALL
IN ONE BASKET

WHEN all of your eggs are in one basket—it pays to watch that basket!

That's exactly the case in a paper mill—where production, deliveries, quality of paper and profits all depend on the operation of the Fourdrinier wire.

That's why superintendents select Tyler Fourdrinier Wires for their machines!

They know that Tyler wires can be depended upon to lie flat and smooth, that they will run straight and true without friction, and that they will make a high quality sheet free from defects.

They know Tyler wires are durable and dependable—that they are good for long and continuous operation without repairs or adjustments.

It will pay you to try Tyler wires on your machines.

TYLER WIRES

for screening WOOD CHIPS

HUM-MER *Electric* SCREEN

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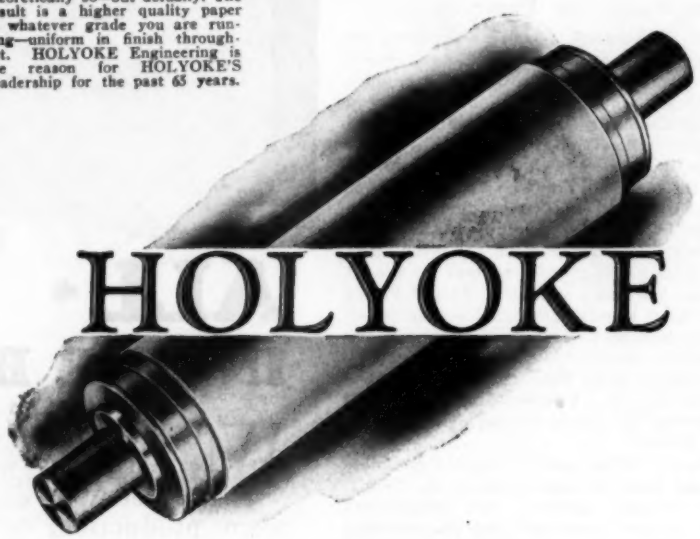
The W. S. TYLER COMPANY
CLEVELAND, OHIO

PIONEERS SINCE 1863 IN THE MANUFACTURE OF PAPER MILL AND WOOD PULP MACHINERY

HOLYOKE Cotton and Paper Rolls are precision rolls. Not theoretically so—but actually. The result is a higher quality paper of whatever grade you are running—uniform in finish throughout. HOLYOKE Engineering is the reason for HOLYOKE'S Leadership for the past 65 years.



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LONGER LIFE

LONG LIFE in paper and cotton rolls designed and built by Holyoke Engineers is due to the hundred and one important details which they refuse to overlook. The Outstanding Holyoke-Roll qualities of Resiliency, Uniformity, Long Life, and Heat Resistance are all insured by this insistence upon attention to the finer points of engineering construction.

Write HOLYOKE MACHINE CO., HOLYOKE, MASS., Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.

The HOLYOKE MACHINE COMPANY

FOUNDED 1863

termined on the same basis as that upon which the three units now comprising Moore Corp.—American Sales Book Co., Gilman Fanfold and Pacific-Burt—were brought together. If the agreement is ratified, it does not mean that the Burt shareholders will receive directly shares of Moore Corp., but rather that Moore shares will go into the treasury of F. N. Burt Co., just as though they were paid for this particular line of Burt business.

Officials point out that the arrangement should be profitable to F. N. Burt shareholders. The company now will devote itself exclusively to the paper box end of the business, while at the same time a purely Canadian sales book business is exchanged for an interest in a company in the same line whose ramifications extend throughout both the United States and Canada.

A very unfortunate accident of a fatal nature occurred on November 9 at the Smooth Rock Falls Division of Abitibi Power and Paper Co. It appears that the fatality, involving the death of Stefan Kamasiewicz, the blasting man, was due to the premature explosion of dynamite in the block pile.

The paper machine at the Lincoln Division of Alliance Paper Mills, which was entirely remodelled and rebuilt during the past summer, has been operating since September 1st with entire satisfaction. It is now turning out an exceptionally fine line of high grade sulphite and rope tag specialties.

According to Dean C. D. Howe, of the Faculty of Forestry, Toronto University, there is a good enrollment of student for this year's work. He added that there had not been much difficulty in placing all the members of last year's graduating class in position, more than half of them having been taken by private firms, mostly pulp and paper companies.

Owing to low water in the Ottawa River a number of industries have suffered loss and inconvenience. Among others the Bronson Co., of Ottawa, had to close down owing to the impossibility of operating the wood grinders.

Superior Paper Mills, Ltd., of Thorold, which recently made extensive alterations to its mill, is reported to be working to capacity at the present time.

Another plant to make its own electric power as a by-product of steam is Dominion Boxboard, Ltd. A brick addition to the present mill is now under construction to house a 1200 kw. generator, and a shed for raw material storage will be started soon. It is expected to have the changes completed by the 1st of January, when the mill will be making 100 tons a day. At the present time the plant is turning out between 80 and 85 tons, with a total waste of 3 to 3.5 per cent.

◆ MANITOBA ◆

Keen interest in the leasing of Manitoba timber limits is evidenced by the reports emanating from Winnipeg to the effect that a number of companies operating along the Ontario border and in Northern Manitoba are making application for new allotment for pulpwood concessions. The Manitoba Paper Co., Brown and Rutherford and International expect to get new allotments of timber in the Lake Winnipeg district. Brown and Rutherford have applied for all berths covering forty townships convenient to the company's Birch Point mills, but this is within the limits of the Manitoba Paper Co.'s territory, where they are guaranteed 6,000,000 cords by the government.

A conference was recently held in Winnipeg in regard to the allocation of pulpwood limits in the Lake Winnipeg district, between the federal authorities represented by Hon. Charles Stewart, Minister of the Interior, and the government of Manitoba. The main issue to be settled is the additional allocations to be given the Manitoba Paper Co., to

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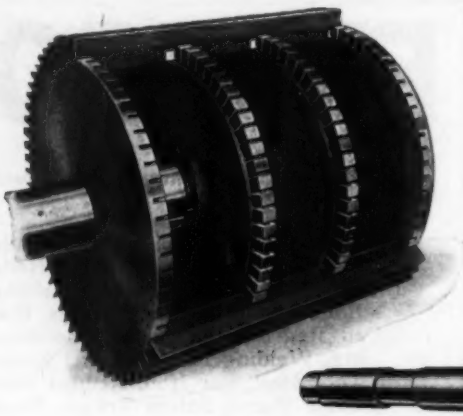
In 38 years of design and manufacture of water filters and softeners, Hungerford & Terry have installed an aggregate daily capacity of more than one billion gallons.

This experience has enabled them to aid paper and other manufacturers to improve their products and reduce their costs of production by the proper treatment of that important material—water.

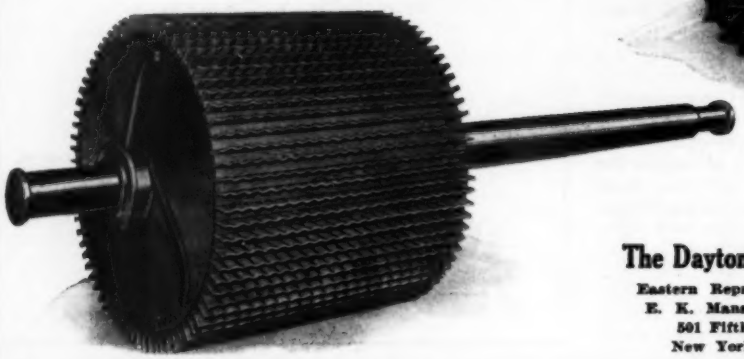
Is your water supply properly protected to insure highly efficient mill operation and the highest quality in your product? Hungerford & Terry Engineers will investigate your conditions and report to you fully without obligation.

HUNGERFORD & TERRY
INC.
CLAYTON, N. J.



DAYTON
High Speed Beaters

Dayton Bandless Beater Rolls may be equipped with any type bar the condition requires. The types illustrated here are in use in many mills and are proving successful.



We can give you your choice of bars—and we may be able to assist you very materially with your Beater problems if you'll ask us.

The Dayton Beater & Hoist Co., Dayton, Ohio

Eastern Representative,
E. K. Mansfield Co.,
501 Fifth Ave.
New York City

Western Representative,
F. H. Godfrey,
415 Lenora St.,
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FITCHBURG DUCK MILLS

ESTABLISHED 1844

414 Duck Mill Road, FITCHBURG, MASS.

Manufacturers of

TRIUNE and MULTIPLE PLY

CANVAS DRYER FELTS

← { OUR NEW 300-INCH LOOM WHICH IS MAKING A DRYER FELT 288 INCHES IN WIDTH }

Fine Faced "English Woven" Felts for Fine Papers in Two, Three, Four, Five and Six Ply 60 Inches to 288 Inches in Width.

ABSOLUTELY NO FELT MARKS IN PAPER

TRIUNE Three Ply Felts for extra long service and large production

make up the 6,000,000 cords which the company was guaranteed under its agreement. In the limits mapped out, cruises made by the Forestry Branch showed there would be a considerable shortage in the cordage the company was to get.

❖ BRITISH COLUMBIA ❖

Rapid Expansion of the Industry

On his return from a six weeks' trip to the Coast, E. P. Cameron, director of the Pulp and Paper Division of the Forest Products Laboratories of Canada, gave out his impressions in the course of a recent interview. Mr. Cameron found that the pulp industry on the Canadian Pacific Coast has been expanding steadily for the past five years, and especially during the present year.

The Powell River Co. has been granted the right to utilize hydroelectric power at Lois River and Gorden Pasha Lake to justify a $10,000,000 construction program involving installation of two additional paper machines, making it an eight-machine mill.

Pacific Mills is to spend $1,500,000 for added water power and the renovation of buildings. It is a subsidiary of the Crown Willamette Paper Co. It will take power from the British Columbia Power Corp. at its Campbell River plant.

British Columbia Pulp and Paper Mills, successor to the Whalen Pulp and Paper Mills, which liquidated some four years ago, is understood to be on a sound basis now, operating two mills under direction of Lawrence W. Killam, who is at present in Japan to build up the trade of his company there.

Great things are expected of the International Paper and Power Co., which is understood to have taken option on some great timber properties at Beaver Cove, Vancouver Island, where it is thought that a 1000-ton newsprint mill will be built. But as to this the International officials refuse at present to commit themselves.

Greater enterprises are on the way in Vancouver than the mills planned, in the way of power projects, which will be a vital element in the development of pulp and paper mills. The British Columbia Power Corp., through two of its larger subsidiaries, within the next few years will expend no less than $50,000,000 for various developments. This program includes a 188,000 hp. development on Ruskin, Bridge and Campbell Rivers; the Bridge River project will ultimately yield 750,000 hp. it is said. The West Kootenay Power and Light Co., a subsidiary of Consolidated Mining and Smelting Co., is planning a great power development in the interior of British Columbia, at Kootenay Lake, by building a dam at Granite Falls. It also is to harness the Pend Oreille and Adams Rivers. The Power Corp. of Canada and Canadian Utilities, Ltd., has been acquiring properties in Northwestern British Columbia and Vancouver Island, portending, perhaps, important transactions in those regions to increase the power available.

Recent advices from Vancouver say that it will be necessary to double the original plans for a pulp and paper mill at Prince George, on the Nechako River, in order to make it capable of yielding a return on the investment. Instead of an initial outlay of $3,000,000, as at first intimated, it would require an expenditure of at least $6,000,000 to harness the Nechako River and store sufficient water for the magnitude of operations now being planned. According to John Stadler, the enterprise requires a paper mill with a daily capacity of 500 tons and about 100 tons of pulp suitable for the manufacture of rayon.

Robert J. Scanlon, assistant resident manager of the mill of the Powell River Co., recently visited the east, where it is understood the purpose of his trip is to inspect some of the more up-to-date paper mills in view of collecting information which will be made use of in connection with the expansion program which his company is initiating. Among

Felts That Can Really Be "Put Through the Mill"

Felts passing between the nip and rolls uncountable thousands of times, with production pounding away at top speed must be *good* felts. Orr felts *are*. Give them the job of removing a maximum of water—put them "through the mill" at production pace—and don't make your dryers sweat out the task that Orr Felts can do ahead of them.

Orr Felts combine the qualities of strength, stamina, removing water with freedom from breaks, reducing steam consumption, and less down time. Back of them is a highly specialized manufacturing skill—a knowledge of mill problems—the experience and ability to produce felts for every grade and class of machine.

Many mills now use Orr Felts because they know the facts. The mills who haven't tried them have missed the opportunity of finding out just what Orr Felts can do in the way of aiding production and reducing costs. Still—there is time to try them!

A complete line—for every particular type and need. Our representatives can assist you if you'll state your requirements.

Orr Felt & Blanket Co.
Piqua, Ohio

The twin engine that drives the paper making machine at the Hopper Paper Co., Taylorville, Ill.

CINCINNATUS - - -

the belt that combines brute strength and extreme flexibility

Cincinnatus Friction Surface Belting has been designed especially for the hardest drive where stretch is a troublesome factor. On drives like this you can depend on Cincinnatus to handle the heaviest load with 50% less stretch than the ordinary belt.

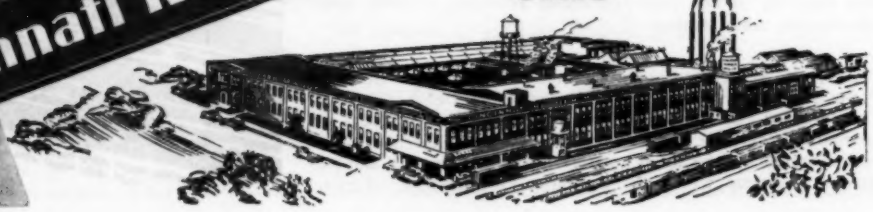
A typical example of the service that you may expect from Cincinnatus comes from the Hopper Paper Co., Taylorville, Ill., where an 18″ 8 ply Cincinnatus belt transmits 175 H. P. to the paper making machine. Here Cincinnatus has given long, trouble free service and has proved to be the most economical belt for this drive.

We will be glad to consult with you on your special requirements.

Another Record of Performance

The Cincinnati Rubber Manufacturing Co.

CINCINNATI OHIO



others visited, were the Price Bros. mills at Kenogami and Riverbend, Que., where the particular objects of interest were the Minton vacuum dryers. A number of Eastern states mills were also visited, as was the experimental pulp and paper mill at the Cellulose Research Institute, Montreal. Mr. Scanlon was recently appointed regional director for the west of the National Safety Council of America, pulp and paper section. This is a new territory to be added to that covered by the National Safety Council, and its organization will be carried out under the supervision of the Powell River Co.'s official.

Investigations by the entomological branch of the Dominion Department of Agriculture, conducted under the direction of Ralph Hopping, of Vernon, show that there will be serious losses to British Columbia forests if some measure of control is not employed to put a stop to the ravages of the tussock moth, which destroys the Douglas fir, and the hemlock looper, which is destroying vast stands of hemlock.

Westminster Paper Rebuilds Mill

The Westminster Paper Co., Ltd., of New Westminster, has decided to erect a new plant to replace that destroyed by fire on July 13. The damage involved in the destruction was around $1,000,000, while the new plant will cost $2,000,000. The new plant will be built in units, the first costing $800,000. All equipment for the plant has been purchased, and delivery is to be made before the end of the year, so that the mill can be in actual operation before February 1.

It is announced that when completed the plant will have a pay roll of $250,000. The first unit will consist of a two-story machine-room building, 230 feet long, and a three-story finishing building, 100 by 160 feet. These buildings will be of fireproof construction. A warf will also be built, 260 feet long by 60 feet wide. The reconstructed plant will have more modern equipment and a wider variety of products than the original one. By reason of its diversified production it will be the only mill of its kind in Canada, and equal to any in the United States.

Pacific Mills, Ltd., has decided to establish a converting plant in Vancouver to take care of the manufacture of most of its products, with the exception of newsprint and kraft. The Vancouver plant will concentrate on the production of waxed papers, printed wrapping papers, waxed bread wrappers and similar lines. Machinery for the manufacture of paper napkins and paper towels will also be installed.

In addition to the development of the new power site of the Powell River Pulp and Paper Co. recently announced, it is now revealed that some immediate extensions will be made to the plant at Powell River. These will include a new machine room, grinder and screen room, an additional digestor in the sulphite department, and an extension of the existing steam plant.

H. M. Lord, secretary-treasurer of Westminster Paper Mills, Ltd., New Westminster, has announced that his company has awarded the contract for clearing of the site of the new plant of the firm. The contract for pile driving and foundation laying has also been awarded.

◆ NEW BRUNSWICK ◆

Expansion of International Paper

It is announced from St. John that the International Paper Co.'s pulp mill at St. George, which has been closed for two years, is on the point of being reopened. There is also talk of a waterpower development in the vicinity of St. George where a private source is available. The mill, when running, employs about 100 hands. Contracts are being made for a winter wood supply and new machinery has been assembled.

Officials of the company have also notified a committee of the town council of Chatham that it is the intention of the

Positive Air Displacement speeds up Pneumatic Conveying

Greater capacity through longer lines is possible in conveying systems using Connersville Rotary Positive Blowers.

The characteristic positive displacement of air by a Connersville Blower, whether used in connection with a pressure or suction system, moves grain, sawdust, ashes, lime, pulverized coal, etc., more rapidly. High blower efficiencies result in a low power cost per pound of material handled.

Specify a Connersville Blower for the lungs of the conveying system.

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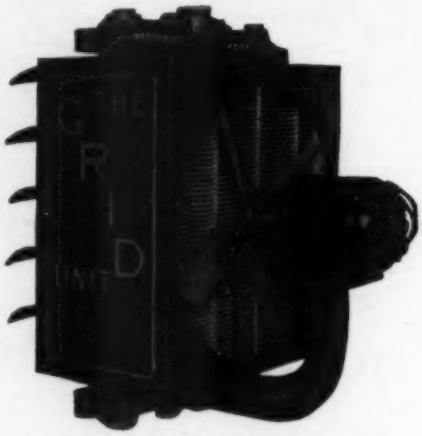
CONNERSVILLE
Blowers · Gas Pumps · Meters · Cycloidal Pumps

Grid All-Cast Radiation



A Product of the D. J. Murray Mfg. Co. Wausau, Wis.

A new principle in Unit Heater design.

Great strength in all its features combined with light weight.

Compact — Efficient — Non-corrosive.

Suitable for high or low pressures.

Equally applicable to heating or cooling problems.

Designed for Steam — Water — Brine — Ammonia.

Used not only for Unit Heaters and Coolers, but also for

Blast Radiation
Direct Radiation
Concealed Radiation

Built in a variety of sizes.

Fully tested and guaranteed.

The Unit Heater & Cooler Company

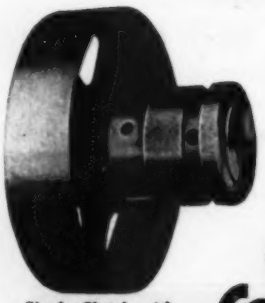
Home Office and Plant
Wausau, Wisconsin

First National Bank Bldg.
Chicago, Illinois

Salmon Tower Bldg.
New York, N. Y.

THE JOHNSON FRICTION CLUTCH
THRUOUT THE WORLD

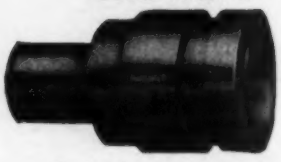
from Shop to Shop
You will find



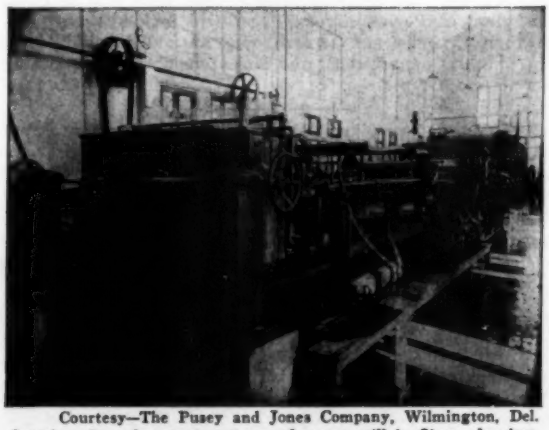
Single Clutch with Pulley Mounted

JOHNSONS

USE STEADILY GROWING



Single Clutch—Exterior



Courtesy—The Pusey and Jones Company, Wilmington, Del.
Interior view of government owned paper mill in Siam, showing Fourdrinier paper machine

WRITE FOR CATALOG "PI-12"

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN.

company to erect a pulp mill at that place, but that nothing will be done this winter. To this it was added that the company hopes to be able to procure more land, so that a mill of not less than 100 tons per day capacity may be erected.

Meanwhile, excellent progress is being made on the company's newsprint mill at Dalhousie. It is expected that the first machine will be installed about January 1, 1930 and that the second one will follow a few weeks later. The capacity of the plant will ultimately be 550 tons a day, the mill having been designed to house four paper machines. The machines will be 226 inches wide and designed to operate up to 1200 feet per minute, and will have a daily capacity of 137 tons each. Twenty-four dwellings are being constructed at Dalhousie for the company, to be occupied by members of the staff when the new mill is completed.

Construction of the 100-mile high-tension transmission line from Grand Falls to the new pulp and paper mill of International Paper at Dalhousie, carrying a voltage of 132,000, is expected to be completed early in December. Construction of the line was started early in June and contract calls for completion in time to connect up the power supply with the Dalhousie mill, which is to go into operation within a month. Though this transmission line is not the largest in Canada, the size of the undertaking is better appreciated by the fact that the steel towers carry three lines, totalling 312 miles of wire. In all, there are 607 towers, 54 of which are light towers, 40 semi-anchor towers, 17 anchor towers and six transposition towers. All the materials used in the building of the lines was Canadian-made.

◆ NOVA SCOTIA ◆

Opening of Mersey River Mills

Invitations have been issued for the formal opening of the mills of the Mersey Paper Company, Ltd., Liverpool, Nova Scotia, as well as for the opening and inspection of water-powers of the Nova Scotia Power Commission on the Mersey River, both events being scheduled for Saturday, December 14. The hour set for the opening of the mill at Brooklyn, which is the name of the mill community, is 11 o'clock a. m.

A button starting the machinery of the mill in motion will be pressed by Hon. E. N. Rhodes, premier of Nova Scotia, at 11:20 o'clock, and at 11:30 the inspection of the mill by guests will begin. A camp dinner will be served at the Mersey Paper Company construction camp, and at 2:30 o'clock guests will embark in motor cars for an inspection of the water-powers of the Nova Scotia Power Commission on the Mersey River. The departure from Liverpool station for Halifax on the return trip will be made at 5:30 p. m., dinner being served on the train.

The Mersey Paper Co., Ltd., will then produce newsprint for the first time in the history of Nova Scotia. Already a staff has been recruited from paper mills throughout Canada, and all the wood necessary for the first several weeks' operations is already on hand at the new plant.

With the commencement of production the company's steamship line, recently established, will carry the finished product to the markets along the Atlantic seaboard of the United States. Paper will be forwarded also, it is expected, to South America and Australia, both of which markets are at present served by Upper Canadian manufacturers. This, it is believed, will be one of the new mill's chief advantages over central Canadian mills, particularly during the winter season when the St. Lawrence is closed to navigation. The all water route for Liverpool, site of the Mersey company's plant, will prove inexpensive as compared with the combined rail and water rates which central Canadian newsprint manufacturers have to pay.

The report that Stanfields, Ltd., was entering into the manufacture of rayon yarns has been denied by the company, which stated that it was not deviating from its policy, which is the manufacture of rayon knit goods.

A GOOD FLOAT VALVE DOES NOT LEAK

Many an engineer wishes he had a float valve that wouldn't leak — and many an engineer installs the Davis and has no troubles to bother him because this valve closes tight.

For every place where the admission of water to an open tank or reservoir is to be controlled by the rise and fall of the water level, the Davis Float Valve makes a simple, reliable installation. There is no internal packing—no danger of sticking. It has a single seat with a renewable composition disc that always closes tight. The best of satisfaction is assured by the use of this valve.

G. M. DAVIS REGULATOR CO.
414 Milwaukee Avenue
Chicago, Illinois

DAVIS AUTOMATIC VALVE SPECIALTIES

PI12-Gray

THE LONGER LIFE OF POWELL VALVES

Fig. 460
Iron Body "Pilot" Gate Valve

POWELL Valves owe their longer life to distinctive design, carefully selected materials and faultless workmanship. It is these essentials principally that combine to produce Powell Valves with a longer valve life.

Moreover, there are Powell Valves which incorporate special features for prolonged service—seats and discs that are reversible, regrindable, renewable. These inherent features materially increase the life of Powell Valves.

THE WM. POWELL CO.
2525 SPRING GROVE AVE. CINCINNATI, OHIO

Entering Its 39th Year!

Another calendar year closes . . . and for 38 years the Appleton trade mark has designated a product that today is standard for quality and service. As it enters into its 39th year of service to paper mills, this trade mark is today, as always, the symbol of quality and service. Only quality and service can result from the Appleton method of manufacture. Every operation is checked and rechecked during manufacture, beginning with a high grade pure wool.

When you submit your felt problems to us, you command 38 years' experience in making felts and jackets. Write to us any time.

APPLETON WOOLEN MILLS

Appleton, Wisconsin

Appleton

Felts and Jackets

NEW YORK CITY

International Paper Shows Deficit

A deficit of $1,187,904 is shown by the International Paper and Power Company and subsidiaries for the third quarter of 1929 after all subsidiary dividends and company preferred and Class A common dividends. This compares with a deficit of $1,278,895 in the June quarter, and one of $1,720,658 in the initial quarter of this year.

For the nine months ended on September 30 the company's deficit totaled $4,187,458, but was reduced to $2,543,472 through the addition of undistributed earned surplus of the New England Power Association applicable to shares held by the International Paper and Power Company and subsidiaries, arising since the date of the original acquisition of such shares, and of minor surplus adjustments. Total revenue for the third quarter was $9,919,714, compared with $9,267,342 in the preceding quarter and $4,627,211 in the first quarter of the current year. Net revenue after subsidiary dividends totaled $1,022,603, against $927,641 in the June quarter and $480,423 in the March quarter. For the nine months, the total revenue was $23,814,268, and net revenue was $2,430,668.

Net current assets of the company on September 30 last totaled $50,875,000, when current assets were $75,461,000 and current liabilities were $24,586,000, the latter comprising only ordinary accounts payable and accruals of interest and dividends. All bank debts of the company and of all its subsidiaries have been paid off. Among the current assets were $13,947,000 in cash, and $21,111,000 in accounts receivable. Inventories, plus cash advanced for logging operations, taken at the lower of cost and market, aggregated $40,403,000.

Young Elected I. P. Secretary

Coulter D. Young has been elected secretary of the International Paper Company, according to announcement issued from the New York headquarters of the company.

Mr. Young is a member of the New York and Connecticut bars, and has had broad experience in corporate legal affairs. After graduating from Yale College and Yale Law School he joined the legal department of the United States Steel Corporation. Later he was connected successively with the law firm of Stetson, Jennings and Russell; with the American Trading Company as resident attorney, and then with Davis, Polk, Wardwell, Gardiner and Reed—successors to Stetson, Jennings and Russell—leaving that firm to join the International Paper Company.

U. S. Rubber Acquires Kaydeross Mill

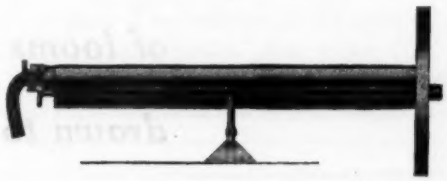
The United States Rubber Company has acquired by lease the paper mill of the Kaydeross Paper Company, Inc., in Rock City Falls, N. Y., and is revamping the plant to manufacture rubber-treated fiber sheet material known as lexide—an imitation leather base material used primarily for bookbindings, luggage, trunk and bag linings, pocketbooks, card table tops, art leather novelties, advertising and display cards, high grade catalogue and pamphlet cover paper, automobile decks and interior panel facings, and as material for radio dynamic speaker cones, according to announcement from the rubber company's offices in New York. Lexide has been on the market for the past two years, but has been heretofore made for the United States Rubber Company in outside paper mills. Last year about half a million yards were put on the market.

The Kaydeross Paper Company's mill has a 64-inch cylinder paper machine with a capacity of about 18,000 pounds per 24 hours. H. G. Lowe was president of the company, and W. A. Wylde general manager.

Patrick McMeel, long head of the firm of William Hughes & Co., Inc., dealers in paper mill supplies of New York, and widely known among paper manufacturers, died on

SCOFIELD FELT CONDITIONER

The Scofield Felt Conditioner is a device designed to meet the needs of the paper industry. It is the result of years of concentrated study of the requirements. Its performance is guaranteed.



A dirty felt is a liability; a clean felt is an asset.

With the Scofield Conditioner you can keep your felts clean continuously. Dirty streaks and spots can be removed quickly and efficiently.

Many mills are using this method of felt conditioning. It is being used on machines making all grades of paper from tissues to boxboard.

Give us an opportunity to review your felt trouble.

We will gladly send you complete particulars upon request.

GILBERT J. SCOFIELD COMPANY, INC.
408 No. Pearl St.
ALBANY, N. Y.

EXPERIENCE

Knowledge gained from over 50 years of making Wires for American and Foreign paper makers has led to the development of looms of our own design; wire drawn to specification in our own plant; skilled, experienced operators, and a product giving long and dependable service.

Appleton Wires
are good wires
APPLETON WIRE WORKS INC.. APPLETON. WIS.

November 22 at his home, 15 Woodruff avenue, Brooklyn, N. Y. Mr. McMeel is survived by a widow, a son, Frank, and a brother, James.

Announcement has been made that E. J. Keller, president of the E. J. Keller Company, Inc., of 200 Fifth avenue, New York, is now the sole owner of that corporation, and that he will continue the business with the same policy as heretofore. George H. Rady, who was formerly vice president and secretary, has withdrawn from the company. The E. J. Keller Company, Inc., has long been one of the foremost concerns in the papermaking raw materials fields, dealing in practically every grade and description of raw stock consumed in the manufacture of paper, and has been especially active in the importation of these materials from various sources abroad.

The Apollo Paper Corporation, of New York City, has been chartered with a capital of 200 shares of no par common stock to deal in paper. M. Hoffman, of 1457 Broadway, represents the new corporation.

The Yuban Paper Company, of New York was incorporated recently with a capital of $5,000, and with N. Lieberman, of 1560 Broadway, New York, named as representative.

ENGLAND

Trade Conditions

Employment has been steady in British paper mills during the last twelve months. The last official figures gave an all-round unemployment figure of 10 per cent, and for the paper industry 4.5 per cent. The value of home demands is on the whole good at the present time, and owning to the fact that many firms have allowed their stocks of paper to run low during the summer and autumn months, there is a good request now for fresh makings. Although a further advance in the selling price of esparto has been expected, no decision to increase prices has been taken up to the present. The increased costs of production are not covered by the farthing increase on selling prices; but the esparto manufacturers may have in mind the fact that there is rather a wide divergence between the prices of wood-free papers and espartos, notwithstanding the fact that the wood-free section of the trade is also laboring under increased costs of production. It is thought that this section may have seriously to consider an increase in prices also, and the general feeling is that if any advance is to be made it should be made now, in view of the higher pulp quotations during the winter. It is reported, however, that there is no great volume of business, and that some mills are short of orders. Home demand is quiet and the foreign competition is keen; the latter has caused several mills to cut their prices, an action which is not considered justifiable as it re-acts unfairly on other mills.

A paper specialist writing on the wood-free situation, in The Times Trade and Engineering Supplement said recently: "The wood-free industry should endeavor to adopt a common policy, and improved methods of selling, particularly oversea. It is obvious that however good the home market may be, it has pretty closely defined limits. It is using more paper than ever, and the per capita consumption of paper will increase still further at a slow rate; but the tonnage output of paper per hour has increased and will continue to increase with the help of more machines and wider and faster machinery. An ever-increasing volume of business must therefore come in from oversea to give that quota of export which is essential to the maintenance of full output of the mills. More than any other section, the wood-free branch must secure this trade, and it is essential that the question of opening up fresh markets or developing further existing ones be considered more as an issue of common interest than as one of personal concern.

"The wood-free section has to face ever-increasing tariff walls, the steady progress in papermaking in countries

APMEW EQUIPMENT RETURNS ITS COST EVERY FEW MONTHS TO MANY USERS

Would your Company like to have it produce similar earnings in your mill?

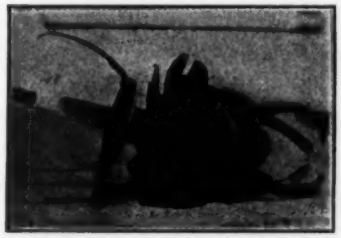
See PAPER AND PULP MILL CATALOGUE page 306 for our catalogue and WRITE FOR INFORMATION.

APMEW Pulp Screens
" Paper Machine Screens
" Fine Screens
" Continuous Filters, Pulp Washers, Thickeners and Save-Alls.
" Rotary Sulphur Burners
" Centrifugal Stock Pumps

American Paper Machinery and Engineering Works
GLENS FALLS, NEW YORK

Canadian Manufacturer—Paper Mill Equipment, Ltd., 413 Drummond Building, Montreal, Que.
Pacific Coast Representative, K. B. Hall, Portland, Oregon

Clean Pipe Lines All of the Time



Slimy pipe lines mean dirty paper and consequently —waste.

It is easy to avoid this trouble with the Hayton Go-Devil. This instrument cleans pipe lines mechanically with no trouble and in a short time. Just insert the Go-Devil in the pipe, turn on the fresh water and out the other end comes all of the slime.

The propeller-like blades of the Go-Devil revolve against the pipe walls scraping off the fungus, leaving a clean line. By means of a strong flexible spring the bends are negotiated with ease.

We will gladly furnish any further information you may desire

HAYTON PUMP AND BLOWER CO.
Appleton, Wisconsin

PAPER MILLS FOR SALE

At AUSTIN, PENNA.—The Bayless Mfg. Corp.'s complete, up-to-date Paper Mill at fraction of its actual value.

At CHEBOYGAN, MICHIGAN, the Paper Mill of the Union Bag and Paper Corp., at a very low price. Exceptional water power contract offered by the Michigan Power Co.

At WINONA, MINNESOTA, the Paper Mill of the Northland Paper and Fibre Co.—a small specialty mill at very low figure, ready to operate.

For further particulars address

GIBBS-BROWER COMPANY, Inc.
Paper and Pulp Mill Brokers
261 Broadway, New York City
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hitherto largely dependent upon imports, and intensive cultivation of certain markets by Continental manufacturers. Despite the formidable nature of these obstacles, it has held its own fairly well until now, but not sufficiently well to permit a feeling of satisfaction. Consumption of paper in the oversea markets has outpaced our progress in supply."

The writer goes on to point out that, in spite of the general belief that export trade is diminishing, statistical records show South Africa, Ceylon, and New Zealand all import more than in 1913, and that taking the past nine months' recorded export of printings, India has imported 143,221 cwt. against 128,907 cwt. for the whole of last year.

Another matter which is occupying the minds of the makers of esparto papers is the question of grading. The grass itself has two or three distinct grades, with price variations of from $3.75 to $4.00 a ton. Owing to the fact that the grass only produces from 35 to 40 per cent of paper pulp, the difference between the prices is equivalent to anything from 40s. to 50s. per ton of paper, or one farthing per pound. The pure esparto paper turned out by the best Scottish mills usually consists of 85 per cent of esparto pulp, about 10 per cent of the best sulphite wood to harden it, and 5 per cent of china clay to give it a good printing surface. Below this first-class quality are various other grades, according to the percentage of pure wood pulp and china clay which has been mixed with esparto.

An interesting development in the esparto section of the trade has been brought about by the discovery that water can be chemically treated as to be rendered suitable for the making of esparto pulp. A large new esparto plant has recently been started up in Kent, and the Kentish water which is made very hard by the chalk which is held in solution has been subjected to this process. For many years the making of esparto paper was confined almost entirely to Scotland and two or three places in the North of England because the water was specially suited to esparto production. Now that water anywhere can be chemically treated, there seems nothing to prevent other mills being built in the South of England.

The supply difficulties do not seem to diminish, and there are members of the trade who believe that bamboo pulp, which in use so nearly resembles esparto, will eventually not only supplement but almost supersede the esparto as a good raw material between rag and wood pulp for papermaking purposes.

Imports and Exports

Below are set out the values of the various groups of paper trade articles imported and exported in October, together with the increases or decreases as compared with the corresponding month of the two preceding years:

IMPORTS

	Oct., 1929	Inc. (+) or Dec. (—) as compared with 1928	Inc. (+) or Dec. (—) as compared with 1927
Papermaking Materials	1,068,319	+204,417	—9,314
Paper and Cardboard..	1,441,375	—178,397	—153,541

Quantities of same articles imported:

	Oct., 1927	Oct., 1928	Oct., 1929
Wood pulp, tons	126,392	118,418	146,008
Paper, cwt.	1,707,145	1,802,402	1,574,473

EXPORTS

	Oct., 1929	Inc. (+) or Dec. (—) as compared with 1928	Inc. (+) or Dec. (—) as compared with 1927
Papermaking Materials	6,577	—1,169	—3,018
Paper and Cardboard..	23,537	+1,397	—5,789

Quantities of same materials exported:

	Oct., 1927	Oct., 1928	Oct., 1929
Papermaking Materials	16,963	17,481	20,029
Paper and Cardboard, cwt.	393,739	350,535	494,687

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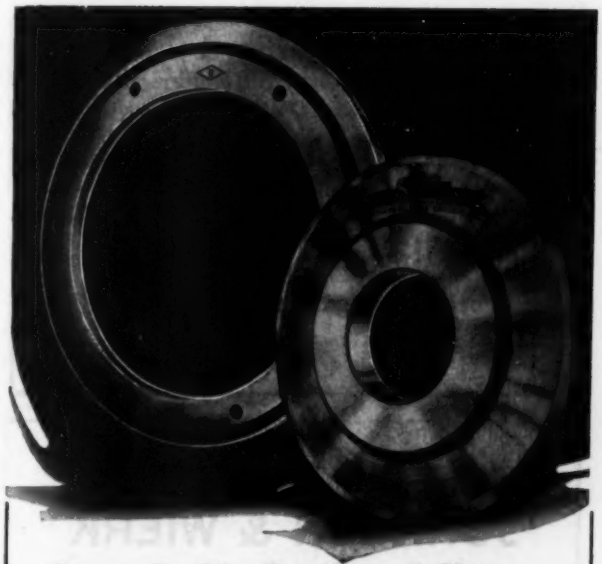

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Federation of Master Printers, printing tableaux were made a feature of the Lord Mayor's procession in London on November 9th last. There were ten cars in all, representative of the various phases of printing, car. No. 3, was entitled: "Making Hand-made Paper." Supplied by Spicers, Ltd., this car showed the hand-made process used from time immemorial, and it including a woman sorting and cutting rags; a rag-beating machine; a workman making paper at the vat and couching on felt; a hand press for getting rid of superfluous water; hanging paper on "treddles" to dry; woman examining and sorting; and workmen counting and packing finished paper into reams.

MICHIGAN

Activities in congress, especially on questions of interest to the paper industry, formed the subject matter for a talk given at the November 21st meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association. The speaker was Representative Joseph L. Hooper, from the third Michigan district. Mr. R. L. Eminger, national secretary of the Superintendents Association, was also present and gave a short talk.

It is reported that Clarence A. Bradford, formerly president of the Bradford Paper Company and widely known in the Kalamazoo valley through his connection with that concern, also with the Rex Paper Company and King Paper Company, is interested in the corporation of the Saint Clair Paper Mills, Detroit. This concern has a capital of 400,000 shares no par value and will manufacture and deal in paper, paperboard and raw materials. Associated with him are J. G. Fox, Kalamazoo, and C. M. Field, Detroit.

The regular meeting of the Cost and Technical Association of the Paper Industry, Kalamazoo Valley division, was held November 27 at the Columbia hotel. Following the dinner, the first speaker of the evening was Harold Dewey of the cost department of the Lee Paper Company, whose subject was "Cost versus Shrinkage." The second speaker was a representative from the Clarage Fan Company, who discussed "Ventilation and Its Effects on Production."

The Bryant Paper Company, Kalamazoo, has begun action in the United States district court, Grand Rapids, Michigan, against the collector of internal revenue for the fourth collection district of Michigan to recover $15,929.98 alleged overpaid as corporation income tax for 1922, plus interest. A total of $30,000 is asked. The suit, according to the Associated Press, follows refusal of a demand for a refund.

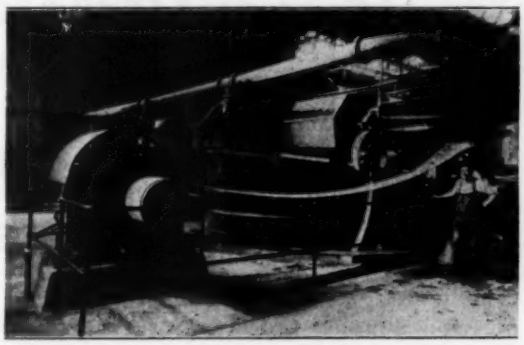
K. V. P. Introduces New Paper

The Kalamazoo Vegetable Parchment Company is now introducing a new paper known as a cleaner and polisher. This sheet is a rag base, unsized, and impregnated with a special cleaning and polishing oil. For cleaning and polishing woodwork, furniture, automobiles, metal, it is most convenient and economical, much more so than anything else on the market in the line of cleaning and polishing liquids. This paper is put up in convenient little rolls 12" wide containing 75 yards. For the work that this paper accomplishes it can be and will be known as the Miracle Paper. There is no scratch to it. It cleans and polishes at the same time.

The Kalamazoo Vegetable Parchment Company has just completed its new addition, 200 feet wide by 325 feet long. This will be largely used for making specialties.

The new power plant building for the Sutherland division of the Sutherland Paper Company, Kalamazoo, is now being enclosed with a roof. This structure will provide for much greater efficiency and economy in the company's power operations. The completed unit will contain considerable new equipment.

RHOADS TANNATE WATERSHED LEATHER BELTING



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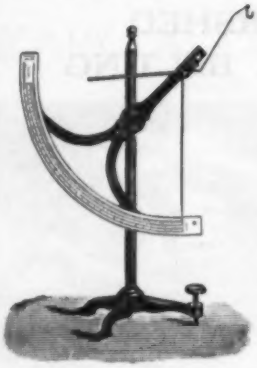
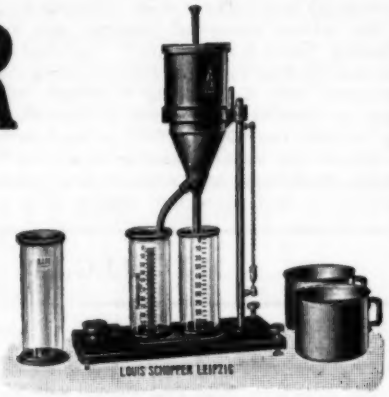


All Kinds of Scales



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The folding test has become standard for bonds, ledgers, and Kraft papers.

Schopper Strength and Stretch Tester

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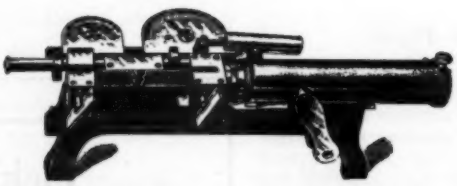
By weighing a piece 2 in. by 4 in., gives basis weight 25x38, 24x36, 22x34, 500 sheets.



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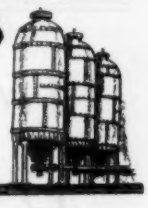
Technical Developments in the Paper Industry



Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

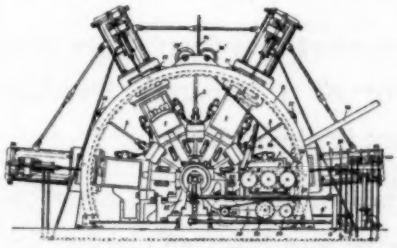
Digestion of Straw

STRAW and other similar vegetable products are used as raw materials for the production of pulp and digested with the aid of sulphite liquor. For example, 800 kilograms of straw are treated with 1,500 liters of bisulphite liquor and 50,000 liters of water. The liquor contains 427 kilograms of sodium bisulphite which corresponds to eighty kilograms of sulphurous acid. The digester is closed after these materials have been added and is rotated for half an hour without the addition of heat. Then the temperature of the digester is raised to 145 to 150 degrees C. by either direct or indirect heating with steam, and the straw is cooked at this temperature under a pressure of three to six atmospheres for ten hours. At the end of the high pressure period, the liquid is discharged from the digester and the cooked mass removed from it and worked up in the usual manner.

The acid preliminary treatment at temperatures of 100 degrees C. and upward exerts a strong reducing action on the fibrous materials. A portion of the lignin is dissolved away by the use of sulphurous acid and its salts in the preliminary treatment of the stock. The mild reducing action and the subsequent clorination assures that the fibers are properly treated without being injured. There are various ways in which the waste liquor can be worked up into valuable products. It may be used for admixture with fresh liquor, for neutralizing the hydrochloride acid formed, for after-treatment of the bleached fibrous material and for being worked up into alcohol and tanning materials. I. G. Farbenindustrie A. G., Frankfort-on-Rhine, Germany. Austrian Patent No. 110,870, filed June 13, 1925.

Pocket Grinder Loader

A POCKET grinder is provided with a loading pocket which is mounted on circumferential tracks. Means are provided for loading the pocket and for adjusting the pocket



to any one of the grinder pockets. Means are also provided within the pocket to drive the load from the loading pocket into the adjacent grinder pocket. P. P. Westbye, Peterborough, Ontario, Canada. United States Patent No. 1,733,038, filed Oct. 29, 1927.

Drying Pulp According to the Fidalgo Method

THE method is described. The stock which has been disintegrated into the form of flakes is passed through the drying canal in a thickness of approximately fifteen centimeters, the time of the travel being on the average seven minutes. The time of drying depends however on the load that is put on the machine, on the pressure of the steam used in the drying operation and on the extent of drying surface available. A steam pressure of six to eight kilograms per square centimeter has been found to be most suitable for use in a short dryer. The air that dries the stock passes through the apparatus in opposite direction to the travel of the pulp and the air has a temperature of 120 degrees C. at the point where it enters the apparatus and a final temperature of 40 to 50 degrees C. It circulates through the machine from top to bottom and back again so that the formation of dust is avoided.

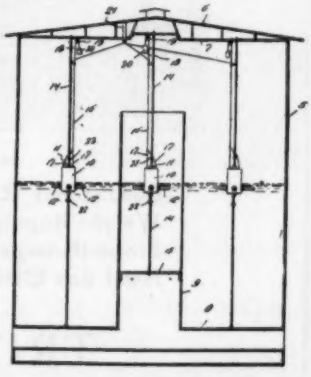
The thermal efficiency of the apparatus is increased by causing the waste air to pass through a heat exchanger. The heat or rather steam consumption is reduced by about twenty per cent figuring on the steam used per ton of pulp. Other details of the process are given. G. Brolin, Svensk Papp. Tidn., volume 32, year 1927, pages 197ff.

Suction Box for Papermaking Machine

A SUCTION box for a fourdrinier machine consists of a channel member (27) and a perforated top plate (11) which is permanently connected with the latter. An expanding packing (16) is placed within the chamber which is formed between the channel member (27) and the perforated top plate (11). The expanding packing (16) is adapted to limit

the width of the top plate to which suction is applied. A rod (22) acts with the expanding packing (16) to expand it and to shift its position. A plate (26) sealing the end of the chamber is provided and is removable from it in order to permit the rod (22) and the packing (16) to be withdrawn from the chamber (15). This affords access to the chamber for cleaning without removing the top plate. G. S. Carroll, Willimansett, Mass. United States Patent No. 1,732,925, filed Aug. 22, 1928.

Heating Apparatus for Surge Tank



A CABLE (14) extends vertically in the surge tank (5) and is anchored at its end. A float (10) of hollow construction is provided with a tube (12) which extends through it and receives the cable (14), so that the float is able to move up and down vertically with rise and fall of the water in the surge tank. A number of electrical heating elements project out from the bottom of the float to be submerged in the water. E. Simzer, Potsdam, N. Y. United States Patent No. 1,731,503, filed April 23, 1928.

Transmission troubles eliminated

DIRECT connected to a synchronous motor, the Nash Hytor Vacuum Pump avoids all transmission troubles and power losses. The pump impeller and the revolving field of the motor are mounted on a single shaft. There are no belts, gears or chains to take care of—no extra bearings to require attention. Maintenance costs are reduced to a minimum.

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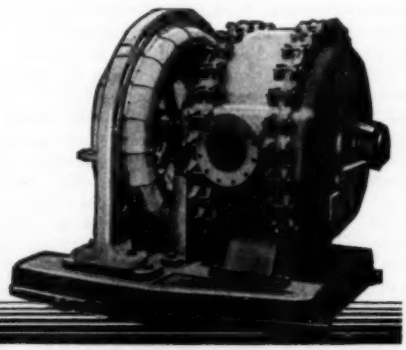

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Pulp Digestion and Recovery of By-Products

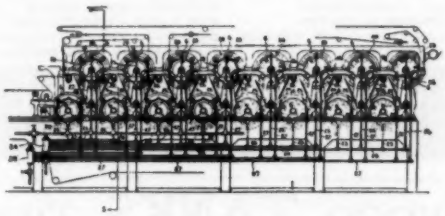
ALKALI sulphate solution (black liquor) is electrolytically decomposed into alkali hydrate and sulphuric acid. The first of the solutions obtained is used either in the unchanged condition or partially converted into the sulphydrate for the production of soda cellulose, or converted into alkali sulphite and used for the digestion of wood by the sulphite process. The sulphuric acid which is obtained by the electrolysis of the black liquor is mixed with the digestion liquor after digestion has taken place and the pulp has been separated from the liquor, for the purpose of converting the alkali compounds which are formed during digestion or used in the digestion into alkali sulphate solution. G. Haglund, Swedish Patent No. 66,729, filed May 13, 1927.

Carbonizing Organic Constituents of Sulphite Cellulose Lye

THIS process consists in adding to the lye a quantity of sulphuric acid which is less than 3.6 kilograms of acid to one hundred liters of lye. The liquid is then heated for approximately eight hours to a temperature of about 180 degrees C. at a pressure of ten atmospheres. C. G. Schwalbe, Eberswalde, Germany. United States Patent No. 1,731,354, filed April 4, 1927.

Paper Feeding Device for Paper Machines

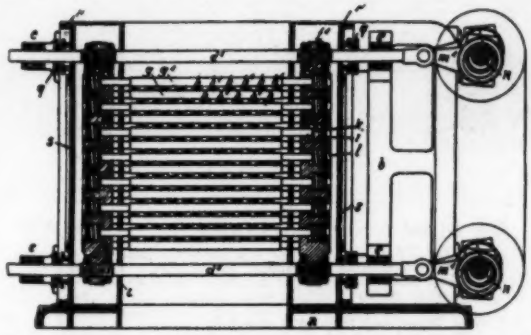
A SERIES of dryer rolls and suction means is arranged in a papermaking machine for effecting the initial threading of the paper. The suction device consists of a series of



rotary members which are arranged in axial alignment with the respective rolls and correspond in diameter to the latter. These rotary members are constructed and arranged to rotate in unison with the rolls and are provided with a circumferential series of suction ports. Means are also provided for causing suction through these ports as they enter that zone in which the paper travels over the periphery of the dryer roll. R. Carpenter, Three Rivers, Quebec, Canada. United States Patent No. 1,732,833, filed March 3, 1928.

Stock Disintegrator

THIS is a new apparatus for separating stock into individual fibers and which is intended to be used in the place of the beater and the ball mill. The stock is rapidly separated into fibers without any injury being done to them by



being passed between metallic rods which are mechanically moved under little power. The illustration shows a longitudinal section through the apparatus.

The base of the apparatus is at (a) on which is fastened the two side frames (b) and two inner walls (c) to form a housing. Four horizontal shafts (d^1) are led through the housing and are supported in the bearings (e). Four supporting pieces (f^1) are connected with the four shafts (d^1). Two groups of rod-supporting elements (g) and (g^1) are arranged in pairs in the supports (f^1). A large number of squeeze rods (h) and (h^1) are fastened to the rod carriers (g) and (g^1). The round journals of the rod carriers (g) and (g^1) are loosely held in the supports (f^1) and thus afford a slight movement of the position of the squeeze rods which movement is controlled by the springs (i). The screws (1) are used to adjust the tension on these springs. The disintegrating parts are moved by means of four eccentric cams (m^1) which are connected with the shafts (d^1) and are actuated by two eccentric shafts (n). W. Reisten, Aschaffenburg, Germany. German Patent No. 479,256, filed Oct. 9, 1925.

Automatic Measurement of Water Content in Wood Pulp

THE resistance, which a definite electric current has to overcome on passing through the more or less moist pulp web, serves for the measurement of the moisture content.

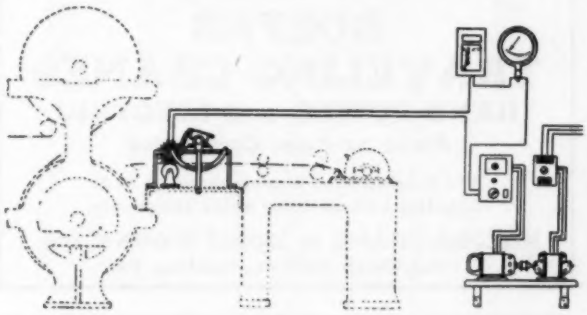


Figure 1

The drier the stock, the greater the resistance. The apparatus which is shown in Fig. 1 consists, according to the width of the machine, of three or more contact rollers regularly distributed over the width of the pulp web, whose needles or points penetrate into the web. This is shown more clearly in Fig. 2. Due to the great resistance, only one of the rollers can be used at a time. A special switch allows the current to flow to any desired roller, with the result that the dry content at various points in the web can be easily and momentarily controlled. This has been found to be very important, for it has made possible the determination of the cause of variation in the water content of the fibers across the width of the web, such as irregular distribution of the mass on the wire or faulty operation of the presses, Such errors can then be quickly remedied. Papir Journalen through Wochemblatt fuer Papierfabrikation, 1929, pages 1111-1112.

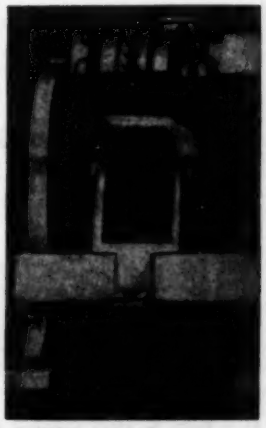


Figure 2

Relation Between Digestion and Other Properties of Unbleached Wood Pulp

A SERIES of investigations resulted in the following conclusions: Sulphite pulp more easily acquires a higher degree of beating than sulphate pulp of like bleachability. There is a connection between the lignin content on the one

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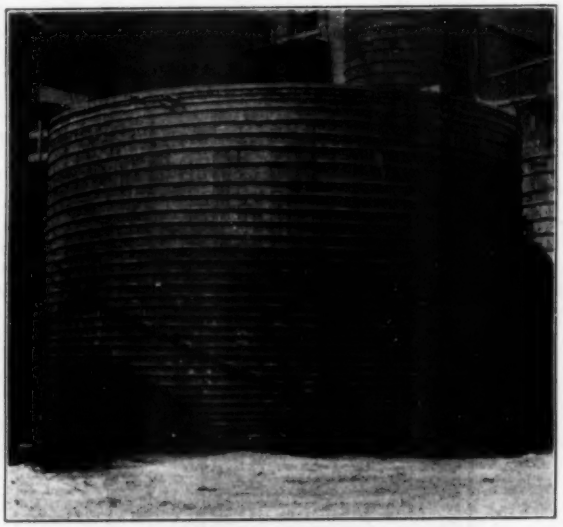

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hand and the folding number, bursting and tensile strength on the other hand. These three strength figures increase with the lignin content. The tearing strength is a maximum at a lignin content of approximately five per cent both in sulphate pulp as well as sulphite pulp. Indirectly digested sulphite pulps possess greater tearing and tensile strength, but lower folding strength than sulphate pulp of like bleachability.

The difference in strength between the directly digested and indirectly digested sulphite pulps is greater than one would assume from the difference in the proportion of lignin present in the pulps. The porosity of the pulp characterizes the state of beating of the fibers better than the slowness of the pulp or the degree of beating. Sulphate pulps gave a more porous paper than sulphite pulps of like degree of beating and like lignin content.

Samples of paper were made from sulphate pulps of different degrees of digestion and the pulps were beaten for different periods of time, in order to obtain papers of like strength from all the pulps. Under such conditions it is found that the porosity of such papers is dependent on the degree of digestion of the used pulps. The harder the pulp, the more porous the paper manufactured from it. It was also concluded that the color of the sulphate pulp depends directly on the condition of the fiber at the point that the digestion is stopped. The less the pulp is digested, the darker its color, and the more it is digested, the lighter the color. Sulphite pulps give as a general rule papers which do not absorb water as much as sulphate pulps. The absorptivity of the fibers for water is directly proportional to the degree of digestion in both the sulphate and the sulphite pulps. Zellstoff und Papier, 1929, 605.

Sulphur Balance in Sulphate Pulp Digestion

THE general conditions surrounding the digestion of sulphate pulp are first outlined. The following sulphur balance is established, the figures being given in percentage.

Combined with lignin	36.70
Combined with other organic substances	15.10
Precipitated from the waste gases in the form of methyl mercaptan and methyl sulphide	15.00
Not consumed in the digestion in the form of sodium sulphide	16.80
Not determined by analysis	16.40
	100.00

The manner in which these figures are obtained is described and reference is also made to the work done on this subject by Klauson. The author arrives at the conclusion that sulphur added with the sulphur is precipitated in the recovery process after digestion, after evaporation of the liquors and after heating red-hot, and that this sulphur exerts no important influence on the formation of soda and on the recovery of sulphate in the smelting furnaces.

A number of tests were carried out on digesters and the following conclusions were reached.

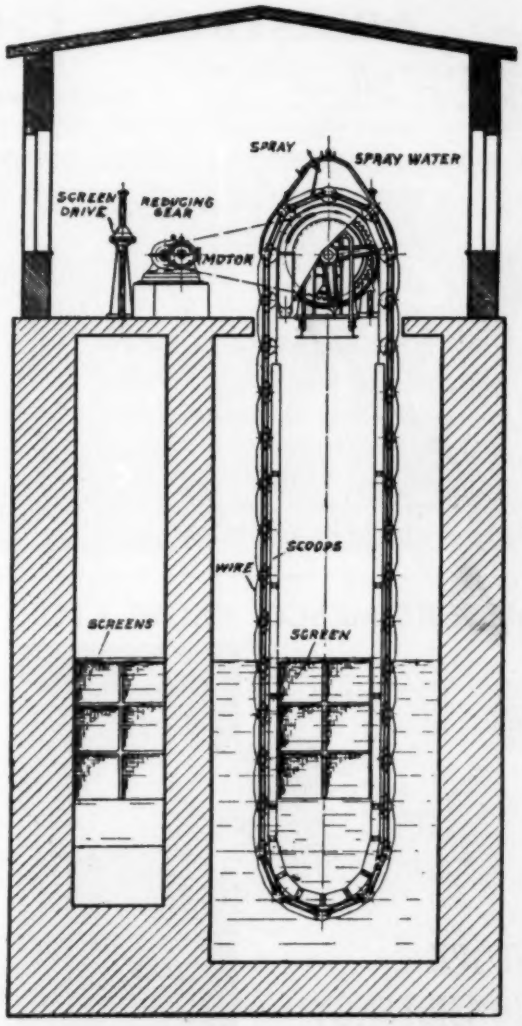
The sulphate, introduced into the furnaces, gives active liquor, which takes part in the digestion of the wood, and particularly sodium sulphide, which goes through the digestion, evaporation, drying and heating red hot and gives sodium carbonate. Thus the sulphate is converted into carbonate. Sulphur makes the circuit with the liquor. This conclusion is important in the evaluation of the sulphate process in comparison with the pure soda process. The sulphate must not be evaluated according to the quantity of sodium sulphide, which it can give, but as salt which contains 23.67 per cent of chemically pure sodium oxide, while soda contains 58.49 per cent of the latter. Hence, soda is correspondingly 1.7 times dearer than sulphate according to the sodium oxide content.

The author also discusses the consumption of sulphate in the process and the recovery of sulphate from the waste liquors. It was determined from a three months' laboratory test that 208.32 tons (metric) of air dried pulp were obtained with a consumption of 65.92 tons of technical sulphate containing 25.92 tons of sodium oxide. J. Dienisow, Zellstoff und Papier, 1929, pages 607-9.

Cleansing Dirty Water

COARSE impurities must be removed from water used for cooling and manufacturing purposes in paper and pulp mills. This is most economically done by means of a traveling screen in the form of a belt. Such an apparatus is shown in the accompanying illustration.

The particular feature of this apparatus is that the water enters the inside of the belt and passes through the meshes of the sieve from inside to outside. A number of scoops of the kind found on excavators are arranged on the inside of the belt. These aid in causing the coarse impurities to move



upwards. The impurities are therefore not collected on the sieve itself. Furthermore, the belt can be cleaned easily by spraying water on it with the result that the dirt partly falls into a collecting channel. The pressure of the water used for this purpose need not be high. The wire gauze forming the sieve is thoroughly cleaned in this manner.

Practice has shown however that the ordinary form of spray will not remove the dirt from the meshes of the sieve, the small holes of which are soon stuffed up. The spray device in this apparatus consists of a brass pipe provided with an enlarged section. The length of the pipe corresponds to the width of the belt and contains a small number of large openings. Specially formed studs are arranged in these openings and these studs are perforated in such a manner that the stream of water which flows from them has a half-moon section. The water strikes an inclined impact plate

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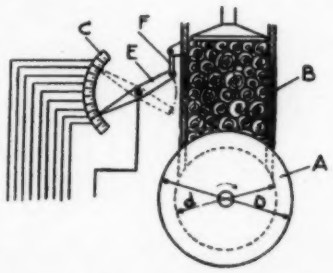
which distributes the water. The distance between the openings in the pipe is such that a rain of water is spread over the entire width of the belt sieve and all the dirt is removed.

It is claimed that this apparatus gives good results at little cost and requires only one or two horsepower for its operation. The apparatus can be made to treat as much as 16,000 cubic meters (565,000 cubic feet) of water per hour. Dr. W. Kaersten. Wochenblatt fuer Papierfabrikation, 1929, pages 991-3.

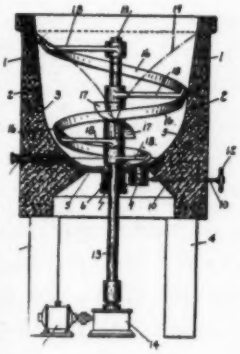
Regulating the Speed of the Stone in Wood Grinders

THE illustration shows the essential details of the improved apparatus. The grindstone is shown at (A). Its original size is drawn in a full line and the diameter is represented as (D), while its size in the used state is drawn in a dotted line and the diameter in this condition is shown as (d). One or more pressure pockets (B) which are built in the regular manner are arranged around the stone for feeding wood to the latter. The electric motor which is used to operate the grinder is not shown in the illustration. It is however controlled by means of the switch (C). The switch handle (E) which makes contact with the various steps on the switch is connected by means of the lever (F) with the pocket of the grinder. This connection is made in such a manner that the motor is regulated so that its speed is greater as the stone becomes worn and penetrates further into the end of the pocket. J. M. Voith Maschinenfabrik, Heidenheim, Brehz, Germany. German Patent No. 476,484, filed Jan. 14, 1927.



Bleaching Pulp

THE apparatus which is used for bleaching pulp is shown in the accompanying illustration. It consists of a tank (1) which is provided with a rotary vertical shaft (13). A spiral ribbon conveyor (16) is connected to this shaft as well as the agitator blades (18). Both the blades and the conveyor are arranged so that they revolve closely to the sides (3) of the tank. The conveyor (16) is used to move the material in the bleaching apparatus and the blades (18) also assist in this action. The mass of material is thereby given an upward movement and is turned toward the center of gravity of the mass. The mass is allowed to fall by gravity. A. D. Merrill, Watertown, N. Y., assignor, The International Bleaching Corp. U. S. Patent No. 1,734,632, filed Aug. 11, 1925.



Straw Paper for Packing Photographic Films

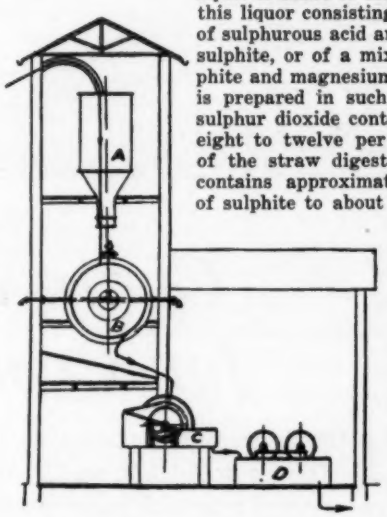
STRAW paper used in packages of films must possess the following characteristics: it must be free from chlorine and acid, free from knots and free from holes. Waste from straw paper is used almost exclusively for the manufacture of such paper which generally weigh forty grams per square meter. Rye straw is generally used for this purpose, for this straw can be better ground and beaten than wheat straw. The paper that is made from this stock has a rather smooth surface on one side, the other being rough. The traces of chlorine and acid are removed by thorough washing in the beater. This is an important matter, for paper containing these chemicals is absolutely unsuited for packing photographic films. This kind of straw paper is made mostly in France and Italy. Zellstoff und Papier, '29.

Paper from Rice Straw

THE ordinary alkali liquid digestion is not applicable to rice straw; although it gives good results with other kinds of straw. This is due to the fact that the silica, which is contained in the rice straw to a considerable amount, is dissolved by the alkali, with the result that the fibers lose any value that they might possess for papermaking purposes. A process for making rice straw into pulp is patented by Cartiera di San Giovanni Lupatoto, Italy, in French Patent No. 658,640.

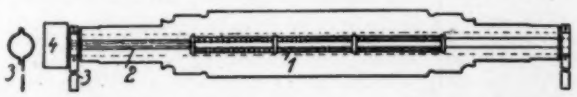
The apparatus is shown in diagrammatic form in the accompanying illustration. The straw is cut up and purified in the usual manner and is contained in the bin (A), from which it is fed by gravity into the horizontal rotary digester (B). There it is heated at a temperature of 100 degrees C. for a period of thirty minutes in the presence of a very dilute alkali liquor. This results in the saponification of the waxes and fats that are contained in the straw, and the residual fibers are also made more easily digested in a following treatment with acid liquor.

The weak alkali liquor is allowed to run off and then a liquor is added to the same rotary cooker, this liquor consisting either of a mixture of sulphurous acid and sodium or calcium sulphite, or of a mixture of calcium sulphite and magnesium sulphite. The liquor is prepared in such a manner that the sulphur dioxide content is equal to from eight to twelve per cent of the weight of the straw digested. The liquor also contains approximately thirty per cent of sulphite to about seventy per cent of free sulphurous acid. The presence of the sulphite is necessary to counteract the action of sulphuric acid, which is formed during the cooking and which can destroy the straw fibers. The straw is digested with the aforementioned solution with the aid of steam for four to five hours at a temperature of 100 to 110 degrees C. Then the waste liquor is run off, the cooked straw is drained to remove the excess liquor and it is then dumped into the beater (C) where it is washed for half an hour. A little soda solution is then added to the beater so that the last traces of lignins are removed and the fibers may then be more easily bleached. The bleaching action takes place in the beater (D).



Heating Calender Rolls by Electricity

THE illustration shows an electrically heated calender roll. The heating element (1) consists of several heating bodies in the form of rods which can be interchanged easily when they burn out. The heating wire is wound on the latter in spiral form and are made from chrome-nickel alloy. Two thick tubes (2) are welded on to the heating element and the ends of these tubes are fastened to the parts (3). The heating device is stationary and only the calender roll rotates. In this arrangement the heating elements have longer life, than if they are rotated along with the roll. These elements can be used in any size of roll. A temperature of 230 degrees C. can be attained within one and three quarters to two hours with ten kilowatt hours of electricity consumption. Zellstoff und Papier 1929, page 685.



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DESPITE the apprehension felt in some quarters of the industry, the crash in the stock market, while causing a temporary lull in paper business, seemingly has had little or no lasting effect on the market for paper. In fact, it can be said that business in paper has staged a decided "comeback" in recent weeks; that the usual stimulation of demand for the various classes of paper and board which accompanies the pre-holiday season has been felt to a distinct degree, and that the market is now in a fairly active position and giving much promise for what is to come.

As December wears on and the year-end and inventory period draws nearer, it is likely that demand for paper and paper products will simmer down to some extent. It usually does at this time of the year, and there seems nothing in the reckoning to indicate that the usual will not be the case this year. However, prospects for the new year are regarded as very bright. Paper manufacturers are looking forward to excellent business, and mill executives and representatives, jobbers and other members of the trade are not the least backward in expressing the belief that 1930 will bring forth a brisk and gratifying market for paper and its products. The commendable manner in which President Hoover has coped with the business and industrial situation, the recovery of general business from the Wall Street slump, the putting in motion of big industrial, construction and other enterprises, and the common deflation in commodities of almost every description, prompt paper men to anticipate good business of general character and with it proportionately good business in the various kinds of paper.

There are several significant barometers which go to divulge the ideas of paper manufacturers concerning the future of their market. One is that in practically every instance where there is a definite tendency in prices of paper, that tendency is in a higher direction. This bespeaks confidence on the part of paper producers in the market outlook, because if they were not expecting satisfactory business they most assuredly would not consider advancing prices of their product. Another is, that in numerous cases paper manufacturers are contracting heavily for raw materials of various kinds for next year, meeting at least the prices they last paid and in some instances granting a slight rise to suppliers. This also indicates confidence in the future of the market, and more particularly in the stability of paper prices during 1930.

Paper production in the United States during September, according to the monthly summary of the American Paper and Pulp Association, amounted to 551,250 net tons, showing a decrease of about 8 per cent from the output of 596,562 tons in the preceding month, but a gain of 8 per cent over the September, 1928, production for identical mills. Paper production for the first nine months of this year registered an increase of 7 per cent over the same period a year ago. All individual grades, excepting bag and wrapping papers, showed gains in output in September over the similar month last year. Mill stocks of paper at the end of September totaled 255,314 tons, against 254,479 tons a month previously, while compared with the same time a year ago, stocks at the end of September were 3 per cent lower.

Newsprint production was on a large scale during October, and probably recorded a new high mark for any single month, according to the News Print Service Bureau. United States mills produced 122,009 tons of newsprint and shipped out 122,040 tons in October, compared with 108,155 tons produced and 107,495 tons shipped in the preceding month, while Canadian mills made 251,914 tons and shipped 252,591 tons, against 227,665 tons produced and 226,623 tons shipped in September, making a total output of 373,923 tons and total shipments of 374,631 tons in October for the two countries, contrasted with 335,820 tons produced and 334,118 tons shipped in the preceding month. During October, 23,841 tons of newsprint were made in Newfoundland and 1,727 tons in Mexico, so that the total North American production for the month amounted to 399,491 tons. The Canadian mills produced 295,942 tons more newsprint in the first ten months of this year than in the same time last year, which was an increase of 15 per cent. The United States output was 9,260 tons or one per cent less in the same period, while production in Newfoundland was 20,324 tons or 11 per cent more, and that in Mexico 2,213 tons more, making a total net increase of 309,219 tons or 9 per cent over the same period in 1928. During October, the Canadian mills operated at 88.8 per cent of rated capacity, U. S. mills at 80.4 per cent, and Newfoundland mills at 112 per cent. Stocks of newsprint at Canadian mills totaled 30,064 tons at the end of October and at U. S. mills 26,573 tons, making a combined total of 56,637 tons, which was equivalent to 3.5 days' average production.

Paperboard production in the United States in September reached a total of 237,759 net tons, compared with 264,365 tons in the preceding month, and 224,971 tons in September, 1928, according to the monthly statistical report compiled by the U. S. Department of Commerce. Board output in the first nine months of the current year aggregated 2,227,948 tons, showing a substantial gain over the 1,992,081 tons produced in the corresponding period last year. Shipments of board from mills amounted to 242,421 tons in September, against 262,889 tons in August, and mill stocks at the end of September were 58,664 tons, contrasted with 61,853 tons a month earlier. Manufacturers had a total of 87,304 tons of unfilled orders for board at the end of September, compared with 82,969 tons at the end of August.

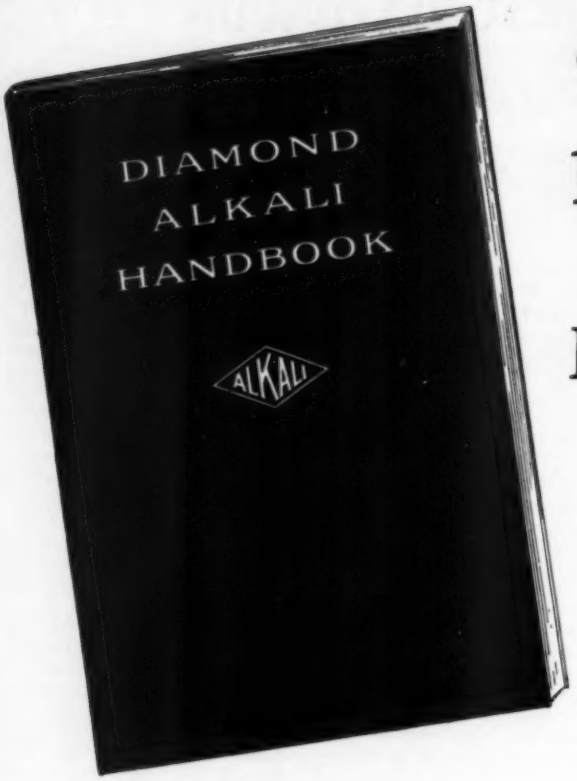
There appears reason to believe that an advance in the contract basis on newsprint paper will be made for next year. Agitation for an increase has been going on for some time, the Premiers of the two Canadian newsprint producing provinces—Quebec and Ottawa—have come out publicly for a rise of at least $5 per ton, and at the moment indications are that an advance will announced shortly. Newsprint consumption is hitting the high spots all over the United States, and undoubtedly has set a new record this year. Publishers are arranging contracts for 1930, although it is understood that the matter of price is being left open.

Fine papers are moving freely and at firm prices, with some lines inclining upward. Wrapping paper has enjoyed a brisk pre-holiday season, and most mills are reported well fixed with orders which will keep them busy for some while to come. Tissue also has been in good demand, and book paper is moving actively, more especially to contract buyers. Fancy papers, glassine, parchment, greaseproof and other classes of paper are wanted in sizable quantities, and are exhibiting price steadiness.

Philadelphia Quartz to Have Baltimore Branch

The Philadelphia Quartz Company, Philadelphia, well-known manufacturer of silicate of soda announces that it will establish a branch plant in Baltimore. The new plant will be situated on a four-acre tract of land in Locust Point, at Fourth avenue and Decatur street.

The company now has factories at Rahway, N. J.; Chester, Pa.; Gardenville, N. Y.; Anderson, Ind.; Kansas City, Kans.; St. Louis, Mo.; Utica, Ill. and Berkeley, Calif.



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Papermaking Rags

Other than for demand of routine character, the market for papermaking rags has quieted very perceptibly. There is not the snap to the call for supplies that was apparent until recently, and indications are that most paper manufacturers have their present requirements covered, and are holding off further buying while approaching the inventory season and while evidently aiming to keep stocks down as much as possible. This does not mean that the market is dull, nor that business is not going through in consistent fashion, because as a matter of fact there is fair activity in the trade, and shipments on contracts and old orders are proceeding steadily and in fairly large volume, but new demand is slow and seems likely to remain so until after the turn of the year.

As would be expected under such market circumstances, prices of most classes of rags are on the downtrend. There have been some rather sharp recessions in values of certain grades. Apparently two reasons are responsible for this fall in prices; one is of course the quieter demand from consumers, and the other is that dealers probably are just as willing to have values recede a bit as the contracting season is drawing near, and a lower market around the end of the year will enable them to contract for next year's supplies in numerous cases on a lower cost level, thereby putting them in an advantageous position should the market improve its position later.

At any rate, everything would seem in favor of buyers at the moment. So far as can be discerned, there is no shortage of consequence in any kind of papermaking rags, although there are grades which are in relatively small available supply, and which are firmer in price than are other descriptions. In new cotton cuttings, for example, No. 1 white shirt cuttings are in an easy quotable position and are moving downward in value, whereas such grades of cuttings as soft unbleached, light silesias, fancy shirt cuttings, canton flannels and some other cuttings are holding their own in price and are reported in less than normal supply in the market. Similarly, in old white rags, the choice packings are reported difficult to locate in sizable quantities and are firm quotably, but the less desirable qualities are in plentiful supply and tending easier in price.

It is stated that No. 1 new white shirt cuttings have been sold to paper mills at 9.50 cents a pound f.o.b. dealers' shipping points, and that perhaps purchases have been made in exceptional cases at this price delivered mills. Few papermakers are using this grade of rag at present, and there is something of an over-supply available, it would appear. Fancy shirt cuttings are bringing 6.25 to 6.50 cents a pound at shipping points, unbleached muslins 11 cents, light silesias 8 to 8.25 cents, bleached canton flannels 9.75 to 10 cents, blue overall cuttings 7.75 to 8 cents, and No. 1 washables 5 cents. Certain mills are reported to have reduced their buying prices rather sharply on No. 1 white and grey linens, yet there is said to be a comparatively good demand for imported new cuttings.

Roofing rags have eased a little in value as a result of felt mills having let down in their purchasing, and No. 1 domestic roofing stock or cloth strippings is now quoted at 1.75 to 1.80 cents a pound at shipping points, and No. 2 domestic stock at 1.30 to 1.40 cents. Foreign dark cottons are fetching only about 1.55 cents a pound ex dock New York, with some roofing felt mills disinclined to meet even this figure. Old No. 1 repacked white cottons are quoted at 5.50 cents upwards, depending on the quality of packing; No. 2 repacked whites at 2.75 to 3 cents, and repacked thirds and blues at 2.50 to 2.75 cents per pound f.o.b. New York.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock	New York and Chicago
White shirt cuttings, No. 1	9.50–10.00
White shirt cuttings, No. 2	6.50– 7.00
Fancy shirt cuttings	6.25– 6.50
Washables, No. 1	5.00– 5.25
Unbleached muslins	10.75–11.00
White lawns	9.50–10.00
Overall cuttings, blue	7.75– 8.00
Black silesias	4.75– 5.00
Canton flannels, bleached	9.75–10.00
Canton flannels, unbleached	8.50– 8.75
Shoe cuttings, bleached	7.50– 7.75
Shoe cuttings, unbleached	6.50– 6.75
Light silesias	8.00– 8.25
O. D. khaki cuttings	6.00– 6.25
Mixed khaki cuttings	5.00– 5.25
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	3.00– 3.25
Linens, No. 1 white, foreign	14.00–15.00
Light prints, foreign	4.00– 4.50
Old Stock—	
Whites, No. 1, repacked	5.50– 6.50
Whites, No. 2, repacked	2.75– 3.00
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.85– 2.00
Lace curtains	5.00– 5.25
Thirds and blues, rough	1.80– 2.00
Thirds and blues, repacked	2.50– 2.75
Black stockings	4.10– 4.25
Cotton canvas, No. 1	4.25– 4.50
White cotton batting	2.50– 2.75
Roofing, No. 1 (cloth strippings)	1.75– 1.80
Roofing, No. 2	1.30– 1.40
Linsey garments, foreign	1.80– 1.85
Dark colored cottons, foreign	1.55– 1.60
Blue linens, foreign	4.00– 4.50
Gray linens, foreign	4.50– 5.00
White linens, foreign	8.00– 9.00
Light prints, extra, foreign	2.50– 2.75

Rope and Bagging

A fairly steady demand of routine character is reported for old rope and bagging, and market prices are in a rather stationary position and displaying no definite trend. Signs are that paper mills are buying just enough of these raw materials to absorb the bulk of supply coming into evidence, and thus lending support to values, and dealers say that incoming supplies are not up to normal, which is perhaps another factor helping to keep market rates steady.

Domestic old manila rope of No. 1 grade is selling at 5 cents a pound f.o.b. shipping points, with slightly above this level paid in exceptional cases, while No. 1 imported old rope is bringing 4.50 cents ex dock New York or other American Atlantic ports. Importers assert that it is difficult for them to buy abroad at costs enabling them to sell to paper mills here at 4.50 cents and realize a fair profit, and indications are that this disparity in ruling prices is slowing down importations of old rope to some degree. Mixed strings are quoted around a cent per pound at shipping points, and sisal strings at 1.75 to 2 cents per pound.

In old bagging, No. 1 scrap is in principal demand, and paper mills are reported paying 1.60 to 1.65 cents a pound f.o.b. shipping points for this grade. Rofing bagging is quiet

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THE NICHOLS CHEMICAL CO., LTD., MONTREAL

265

and is quoted by dealers at 1.25 to 1.30 cents a pound, while gunny bagging is in very limited call and easy in price.

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.50– 1.60
Gunny, No. 1 foreign	1.45– 1.50
Scrap bagging, No. 1	1.60– 1.65
Roofing bagging	1.20– 1.25
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	4.25– 4.50
Manila rope, No. 1 domestic	5.00– 5.25
Sisal strings	1.75– 2.00
Mixed strings	.90– 1.10

Old Paper

From "bad to worse" might well be written regarding the situation in waste paper, the low grades especially. In fact, the market for such raw material for board and paper mills is in a demoralized condition. Prices in the New York market have dropped with a seeming vengeance, and are now down to levels lower than have been seen in many a day. The decline in prices in the East has affected market values elsewhere in the country, and low grades of old paper are difficult to sell even at the attractively low prices quoted by dealers.

No. 1 mixed paper is reported available in the East at 25 cents per hundred pounds f.o.b. New York, and there has been talk of purchases at below this price level. Folded news is selling in the East at 45 cents f.o.b. shipping points, container manilas at 45 cents, and old corrugated boxes at 50 cents per hundred pounds. Higher prices—substantially higher—than these obtain in the Middle West, but the market there has suffered in the general decline and is lower than it was. The higher grades are holding relatively steady, with soft white shavings bringing 2.40 to 3 cents a pound at shipping points, depending on the quality of packing; hard white shavings of No. 1 grade 2.60 to 3 cents, No. 1 heavy book stock 1.30 to 1.40 cents, and old No. 1 kraft paper 1.65 to 1.80 cents. A firm item is white blank news, which is fetching 1.75 cents a pound at dealers' shipping points and possibly higher in some instances.

The following are quotations named by dealers f.o.b. shipping points, some of which are mainly nominal:

	New York and Chicago
Hard white shavings, No. 1	2.60– 3.00
Hard white shavings, No. 2	2.40– 2.60
Soft white shavings	2.40– 3.00
Colored shavings	1.00– 1.25
Heavy book, No. 1	1.30– 1.40
Crumpled book, No. 1	1.00– 1.10
Ledger stock	1.15– 1.40
Kraft, No. 1	1.65– 1.80
New kraft cuttings	2.40– 2.60
White blank news	1.70– 1.80
Manilas, No. 1	.60 .75
Manilas, container	45. .55
Folded news	.45 .60
Sulphite mill wrappings	.65 .75
Old corrugated boxes	.50 .60
New corrugated box cuttings	.70 .80
Mixed paper, No. 1	.25 .40
Common paper	.20 .35

Pulpwood

Reports tell of pulpwood cutting operations getting under way, and of programs for taking out large quantities of wood this winter. Trading in the market at present is limited, although contracts are being arranged in numerous quarters, which serve to lend something of an active complexion to the market. Such prices as are obtainable show little or no change in quotational levels.

During the first ten months of this year exports of pulpwood from Canada, practically all of which came to the United States, totaled 1,174,975 cords, of a value of $12,-

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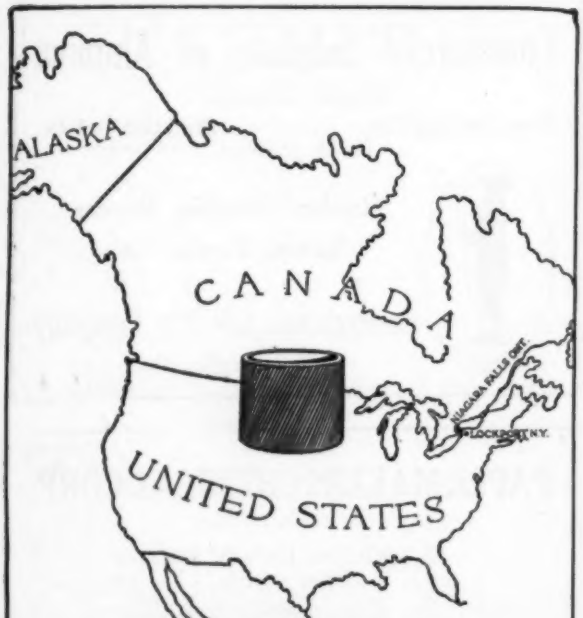

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The illustration shown below is a Battery of Acid Tanks at the St. Regis Co. Mill at Deferiet, N. Y.

The HAUSER-STANDER TANK CO.
Cincinnati, Ohio

030,452, showing a decline from the 1,406,731 cords, valued at $14,047,232 exported in the corresponding period last year.

Mechanical Pulp

Due to a demand and supply condition the like of which has probably not been experienced in the mechanical pulp market in a long while, prices of groundwood have scored a fairly sharp advance and are now up around $32 or $33 per ton f.o.b. grinding mills in the United States or Canada. Most of the groundwood changing hands in the open market at present is of Canadian origin; in fact, domestic producers are declared to have very little tonnage to direct to transient buyers, evidently being engaged in covering their own requirements, and grinders in the Dominion therefore are said to be having no trouble at all in procuring $32 and more a ton for spot shipments of prime groundwood. Scandinavian groundwood is coming in for more attention on the part of American buyers, and is quoted firmly at $35 to $36 per short ton for dry and $33 to $34 for moist pulp ex dock at American Atlantic ports. The firmness in the groundwood market is due chiefly to the inability of grinders to increase their output because of low water in mill streams, and a consequent limited available supply, more especially to transient buyers.

Mills in the United States produced a total of 66,431 tons of mechanical pulp in September, showing a marked decrease from the 72,721 tons produced in the preceding month, according to the American Paper and Pulp Association. Mill stocks at the end of September were reduced to 69,335 tons, compared with 89,688 tons a month earlier.

Chemical Pulp

There is a fair demand for chemical pulp and the market is exhibiting a rather steady price tone, although most of the movement now in progress is against contracts and old orders. Papermakers apparently have covered their needs for a time, and consequently have let down in further purchases as the end of the year and inventory time draw near. Some pressure to sell bleached sulphite is reported, particularly from the Far West, but no change of importance has occurred in quoted rates, and the more popular brands of such pulp are held for 3.75 to 4 cents a pound at pulp mills, and up to 4.50 to 4.75 cents for extra qualities. News grade sulphite is reported selling around 2.65 cents a pound f.o.b. pulp mills, and No. 1 book sulphite at 2.75 to 3 cents a pound. Bleached soda pulp is on a quotable basis of around 3.50 cents per pound delivered paper mills.

During September, mills in the United States produced a total of 123,991 tons of chemical pulp, contrasted with 134,844 tons in August, and had stocks amounting to 21,066 tons, against 21,888 tons a month previously, according to the monthly statistical summary of the American Paper and Pulp Association.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	3.75–4.75
Easy bleaching sulphite	2.75–3.00
Unbleached sulphite, No. 1 strong (news grade)	2.50–2.75
Unbleached sulphite, No. 1 book	2.75–3.00
Soda pulp, bleached (delivered)	3.35–3.60
Mitscherlich, unbleached	3.00–3.25
Kraft, No. 1	2.75–3.00
Screenings, refined	1.60–1.85

Chemicals

Casein quotations are steady to firm, and display an upward tendency. Domestic casein is on a price range of 15.50 to 16.50 cents a pound, while the foreign product is quoted 16 to 16.50 cents, duty paid. Bleaching powder also is firm on a price level of 2 to 2.35 cents a pound at works in large drums. Most paper and pulp manufacturers are now arranging contracts for next year's supplies of chemicals, and no important price revisions have been as yet announced for the new year.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00

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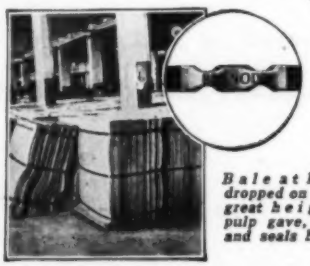

Bale at left was dropped on edge from great height. The pulp gave, but strap and seals held.

Longview Fibre Uses Signode for Baling Kraft Pulp and Liner

The pulp is piled in units 20" high, 100 lb. pressure is applied and the bands are tightened and sealed.
This is but one of hundreds of different applications in the Paper Industry. If you are not already using Signode Tensional Steel Strapping it will pay you to investigate. Ask us to show you what we are doing for other Paper Mills.

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Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

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We ship in Sheets, baled

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New Papers

Writing—	
White rag	15-40
White sulphite	9–30
Colored rag	15–40
Colored sulphite	8–30
Ledger—	
White rag	16–40
White sulphite	10–30
Colored sulphite	10–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Sheets, per ton, delivered New York	67.00–
Side runs, per ton, delivered New York	47.00–52.00
Cover stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.75– .90
No. 2 white, 24x36	.75– .90
No. 1 Manila, 24x36	.75– .80
Kraft	.95–1.10
Wrapping—	
No. 1 kraft	6.00–6.50
No. 2 kraft	5.00–5.50
Southern kraft	4.75–5.50

Boards—	New York and Chicago
Solid news	40.00–45.00
Straw	50.00–55.00
Plain chip	32.50–35.00
White coated chip	50.00–55.00
Manila coated chip	45.00–50.00
Binder's board	65.00–70.00

Chemicals

(*Continued from page* 1647)

Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	15.50 –16.50
Caustic soda, spot delivery	2.90 – 3.00
China clay, domestic washed	8.00 –13.00
China clay, foreign	15.00 –21.00
Rosin, Grade E	9.20 – 9.30
Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags	1.32½– ....
Starch, papermakers', in bags	3.92 – ....
Talc (ton)	16.00 –18.00

Paper Importations Held Dutiable

Importers of various papers who had appealed to the United States Customs Court to reverse the rulings of the appraising officers have abandoned their protests and accepted the customs rulings without court hearings in the following cases which have been reported to subscribers to the Import Committee of the American Paper Industry:

Shipments of glassine paper claimed by importers to be dutiable at 30 per cent as wrapping paper held to be dutiable as greasproof paper at 3 cents per pound and 15 per cent.

Importation of book paper claimed by importer to be duty free as standard newsprint but held by customs officials to be dutiable as printing paper at ¼ cent per pound and 10 per cent.

Coated book paper claimed by importer to be dutiable as printing paper at ¼ cent per pound and 10 per cent, but held by customs officials to be dutiable as coated paper at 5 cents per pound and 15 per cent.

Decorated writing paper claimed by importer to be dutiable at 15 per cent as printed paper of foreign authorship, held by customs officials to be dutiable as writing paper at 3 cents per pound and 15 per cent.

Some of recent importations in which importers disagree with the action of the customs officials, cases in which the Import Committee is interested on behalf of the domestic industry follow:

Eight importations of envelopes claimed by importers to be free of duty, but held by customs officials to be dutiable.

Sixteen importations of writing paper held by customs officials to be subject to 10 per cent additional duty above that claimed by the importer, because of special finish.

English laminated mill board claimed by importer to be dutiable as board at 10 per cent, but held by customs officials to be dutiable at 30 per cent as laminated board.

Suit case board held by customs officials to be subject to 30 per cent duty because of embossing, but claimed by importer to be dutiable as plain board at 10 per cent.

Book and wrapping paper imported at Galveston held by customs officials to have been undervalued.

Wood Research Association Formed in Finland

Particulars are given in a recent issue of the **Hufvudstadsbladet**, a Finnish newspaper, of the organization in Helsingfors, Finland, of a new association for the promotion of researches on wood and wood products. Major S. A. Sohlman, a director of the Central Association of the Woodworking Industries of Finland, was chosen chairman. Among those who took a prominent part in organizing the new association were Prof. Ossian Aschan of the University of Helsingfors, G. K. Bergman, head of the Central Laboratory for the Industries of Finland, Mr. Cronstrom, technical director of Kaukas Pulp Company, and Professor Wuolle of the Technical University of Finland. Supporting the new association are the Central Association of Finnish Woodworking Industries, Kansallis-Osake Bank, the Furniture Factory Owners' Association of Finland, the Enso-Gutseit concern, Hammaron & Co., the Nokia Company, and others.

An ancient building, known of late years as Belleville Gardens, in Belleville, N. J., which had been purchased by Wallace & Tiernan, Inc., makers of chlorine control equipment, for expansion, was destroyed by fire on November 1. It was a capacious wooden hotel which had been used as a road house under the name Belleville Hotel for well over 100 years. A portion of the building had stood for 246 years, having been built in 1683.

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PAPER

EXPORTS

Exports of paper from the United States in September showed a slight decrease in value as compared with exportations in the preceding month, but were substantially higher than in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. Paper exports from this country amounted in value to $2,993,176 in September, compared with $3,088,478 in the preceding month, and $2,098,810 in September, 1928. Exports of paper and paper products of all kinds during the first nine months of this year were valued at $28,125,878, recording a large gain over the shipments valued at $22,641,979 in the same period of last year.

Exports of newsprint in September amounted to 2,070,108 pounds, valued at $83,583, against 2,156,617 pounds of a value of $81,752 in August last, and 1,148,295 pounds of a declared value of $42,588 in September a year ago. Newsprint exports during the first nine months of this year aggregated 23,845,745 pounds of a value of $901,873, contrasted with 15,934,266 pounds of a value of $607,708 in the similar time last year.

Wrapping paper exports from the U. S. climbed from 2,428,413 pounds of a value of $158,636 in September, 1928, to 3,017,972 pounds of a value of $205,363 last September, and writing paper exports increased to 2,669,698 pounds of a value of $276,599 in September this year, as compared with 1,956,220 pounds of a value of $200,373 in the same month a year ago. Sheathing and building paper exports in September were valued at $50,167, against $39,520 in the similar month last year, and tissue and crepe paper exports mounted to a value of $116,530 in September, against $67,927 a year ago.

Boxboard exports in September reached a value of $132,213, compared with $115,702 last year in the same month, and exports of other paperboard and strawboard were valued at $189,596 in September, contrasted with $146,421 in September, 1928.

IMPORTS

Wood Pulp

Perhaps the feature in the imported wood pulp market is the sustained strength in prices of strong sulphite. This grade of chemical pulp is in far from plentiful supply. Producing mills in Sweden and other parts of Europe are completely sold out for this shipping season, and also have a good part of their 1930 production under contract; in fact, latest available figures show that Swedish mills have disposed of more than half of their contemplated next year's output of strong sulphite. Coupled with this rather bullish supply situation is a steady and fairly broad demand for such pulp, with the obvious result that market prices are firm and inclining higher.

Easy bleaching sulphite also is firm quotably, and marked by a moderately good demand. However, the strength noted in these two classes of sulphite is not duplicated in other of the major kinds of chemical pulp. Bleached sulphite is none too steady in price; indications are that something of a surplus of supply exists, and sellers are granting slight price concessions in certain instances, while kraft pulp is not firm although it is holding its own quotably. Prime strong unbleached sulphite is quoted at 2.85 to 3 cents a pound ex dock New York and other American Atlantic ports, with just as high prices asked for shipments next year as for spot lots of such pulp. Prime easy bleaching sulphite is on a quotable range of 2.90 to 3.15 cents ex dock, and possibly a bit higher is named in cases where extra desirable brands of this pulp are involved. Prime bleached sulphite is available at 3.65 to 3.75 cents ex dock, and prime Swedish kraft pulp at 2.45 to 2.50 cents.

The market for imported chemical pulp has not developed a great deal of activity lately. There has been buying, of course, but it has been chiefly of routine character; paper and board manufacturers in some instances placing contracts fairly freely for pulp for next year's delivery, and in other instances absorbing the limited spot lots offered. Statistically, the market appears firm as regards unbleached and easy bleaching sulphite, but rather in favor of buyers as concerns the other major classes of chemical pulp. It is expected that news will be forthcoming shortly telling of the closing of the Baltic to navigation for the winter, and members of the trade in New York are of the opinion that as the winter wears on, a further strengthening of prices in the market here may be witnessed.

Importations of chemical pulp into the United States fell off somewhat during September as compared with previous months, totalling 120,119 long tons of a declared value of $6,818,725, contrasted with 127,234 tons of a value of $7,303,416 in the preceding month, according to official statistics issued by the U. S. Department of Commerce. The September imports brought the total during the first nine months of this year up to 1,065,150 long tons, showing an appreciable increase over the total of 941,866 tons imported in the similar period of 1928. The monthly average of imports during this period in the current year was 118,350 tons, as compared with 104,651 tons average in the same time last year, which means that chemical pulp imports this year have run some 13,000 tons more in each month than during the same period of 1928.

Imports of mechanical pulp in September amounted to 18,452 long tons, valued at $482,051, contrasted with 22,081 tons of a value of $543,973 imported in the preceding month, and making a total for the first nine months of this year of 168,779 tons, valued at $4,280,855, against 159,390 tons of a declared value of $3,891,423 imported in the corresponding time a year ago.

Current market quotations ex dock New York, and receipts at the port of New York during November, 1929, follow:

Bleached sulphite, No. 1	3.65– 4.25
Unbleached sulphite, strong No. 1	2.85– 3.00
Unbleached sulphite, No. 2	2.65– 2.85
Easy bleaching sulphite	2.90– 3.15
Mitscherlich unbleached, genuine	3.00– 3.25
Mitscherlich unbleached, ordinary	2.75– 3.00
Kraft, standard Swedish	2.45– 2.50
Groundwood, per ton (dry)	35.00–36.00

Castle & Overton, 4,748 bls. from Hamburg and 1,837 Bremen; J. Andersen & Co., 3,360 bls. from Greaker, 300 Hamburg, 2,625 Neder Kalix, 2,940 Hernosand and 1,000 Soderhamn; Stora Kopparberg Corp., 925 bls. from Skutskar; Scandinavian Pulp Agency, 1,000 bls. from Skutskar and 1,850 Sundsvall; A. P. W. Paper Co. 10,396 bls. from Sheet Harbor; Lagerloef Trading Co., 640 bls. from Rauma and 338 Helsingfors; Pagel, Horton & Co., 1,200 bls. from Munksund, 3,000 Gefle and 300 Hernosand; Bulkley, Dunton & Co., 14,996 bls. from Soderhamn, 600 Gothenburg, 1,500 Gefle and 5,100 Hernosand; Guaranty Trust Co., 127 bls from Gothenburg and 1,025 Sundsvall; Atterbury Bros., 1,250 bls. from Oslo; E. M. Sergeant Co., 150 bls. from Oslo and 598 Gothenburg; O. E. Klaer, 300 bls. from Stockholm and 600 Gothenburg; E. J. Keller Co., 1,009 bls. from Hamburg; Irving Trust Co., 302 bls. from Bremen, 128 Hamburg and 900 Hernosand; Johaneson, Wales & Sparre, 155

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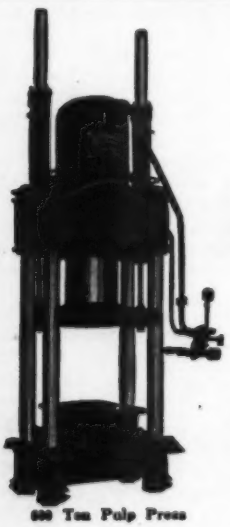
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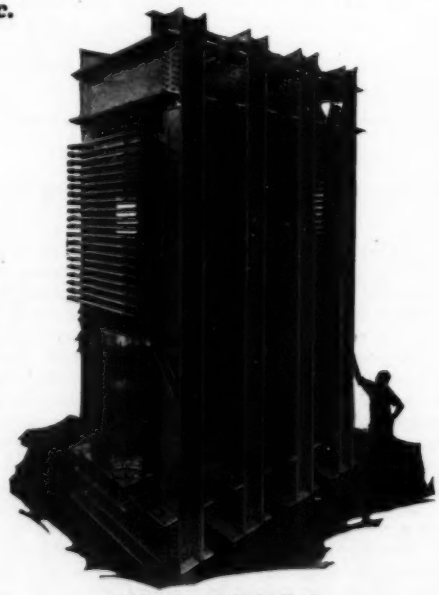
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Paper Stock

The United States imported 36,024,522 pounds of papermaking rags, valued at $796,583, in September, according to official figures issued by the U. S. Department of Commerce, contrasted with 38,296,205 pounds of a declared value of $856,450 in the preceding month, making a total for the first nine months of this year of 327,437,788 pounds, valued at $6,783,667, against 333,535,259 pounds of a value of $6,103,-262 in the similar period of 1928. Imports of waste bagging and waste paper in the first nine months of the current year were 110,667,859 pounds, compared with 114,119,311 pounds imported in the same time last year, while receipts of old rope and miscellaneous paper stock in the similar period this year were 88,948,494 pounds, showing a marked increase over the 45,794,598 pounds imported in the corresponding period a year ago.

Arrivals of papermaking materials during November were fairly heavy, according to receipts through the port of New York. Imports of all kinds of paper stock excepting wood pulp at New York last month, these data being taken from manifests of steamers reaching that port during the month, were as follows:

Old Rope—Brown Bros. & Co., 1,128 coils and 318 bls.; N. E. Berzen, 17 bls. and 114 coils; International Purchasing Co., 328 bls. and 485 coils; Irving Trust Co., 19 bls.; Furness, Withy & Co., 128 bls.; I. C. Van Itallie & Co., 40 coils and 27 bls.; William Steck & Co., 48 coils; Banca Commerciale Italiana Trust Co., 13 bls.; E. J. Keller Co., 53 bls.; Order, 50 bls. and 244 coils.

Old Bagging—Irving Trust Co., 119 bls.; W. Schall & Co., 449 bls.; Katzenstein & Keene, 253 bls.; Ellerman's Wilson Line, 40 bls.; Guaranty Trust Co., 60 bls.; Van Oppen & Co., 890 bls.; Darmstadt, Scott & Courtney, 84 bls.; Lehr Mfg. Co., 243 bls.; Castle & Overton, 104 bls.; E. J. Keller Co., 135 bls.; Order, 337 bls.

Rags—Castle & Overton, 1,190 bls.; Paul Berlowitz, 186 bls.; Ernst Mayer, 140 bls.; Alexander H. Searle, Inc., 205 bls.; George W. Millar & Co., 667 bls.; E. Butterworth & Co., 289 bls.; Victor Galaup, Inc., 335 bls.; Robert Bishop Mfg. Co., 177 bls.; Darmstadt, Scott & Courtney, 18 bls.; American Overocean Co., 60 bls.; J. Reiss & Co., 63 bls.; David Galloway, Inc., 198 bls.; P. Garvan, Inc., 108 bls.; Jaffe Products Co., 4 bls.; Charles Belsky Co., 54 bls.; Atlas Waste Mfg. Co., 26 bls.; S. Birkenstein & Sons, 444 bls.; J. Cohen & Son, 249 bls.; William Steck & Co., 11 bls.; E. J. Keller Co., 937 bls.; Katzenstein & Keene, 208 bls.; N. E. Berzen, 89 bls.; Jebb Bros., 39 bls.; N. S. Maloof, 22 bls.; Albany Fiber Co., 17 bls.; Robert Blank, 37 bls.; Armstrong Cork Co., 74 bls.; Bank of New York & Trust Co., 80 bls.; Equitable Trust Co., 3,995 bls.; French-American Banking Corp., 117 bls.; Chemical Bank & Trust Co., 1,353 bls.; Chase National Bank, 104 bls.; International Germanic Trust Co., 242 bls.; New York Trust Co., 98 bls.; Manufacturers Trust Co., 156 bls.; Hibernia Trust Co., 53 bls.; Irving Trust Co., 386 bls.; Banca Commerciale Italiana Trust Co., 1,101 bls.; Corn Exchange Bank, 53 bls.; Guaranty Trust Co., 89 bls.; Bankers Trust Co., 18 bls.; Philadelphia National Bank, 262 bls.; Fidelity Trust Co., 30 bls.; Lehr Mfg. Co., 286 bls.; American Foreign Credit Co., 58 bls.; Leigh Textile Co., 151 bls.; C. R. Spence & Co., 258 bls.; Amtorg Trading Co., 407 bls.; Gallagher & Ascher, 47 bls.; Baring Bros. & Co., 287 bls.; Porto Rican Express Co., 32 bls.; A. W. Fenton, Inc., 965 bls.; J. A. Medina, 125 bls.; Van Oppen & Co., 84 bls.; W. Schall & Co., 550 bls.; Brown Bros. & Co., 113 bls.; American Express Co., 148 bls.; Order, 2,329 bls.

Miscellaneous Paper Stock—William Steck & Co., 121 bls.; Castle & Overton, 415 bls.; J. Cohen & Son, 28 bls.; George W. Millar & Co., 270 bls.; Belgam Corp., 55 bls.; Daniel M. Hicks, Inc., 298 bls.; F. W. Ranskoel, 2 bls.; Whaling Waste Products Co., 91 bls.; Alexander H. Searle, Inc., 154 bls.; S. Birkenstein & Sons, 35 bls.; Fritz Stern, 7 bls.; E. Butterworth & Co., 42 bls.; Darmstadt, Scott & Courtney, 148 bls.; Ernst Mayer, 15 bls.; E. J. Keller Co., 360 bls.; New York Trust Co., 147 bls.; Anglo-South American Trust Co., 97 bls.; First National Bank of Boston, 15 bls.; Equitable Trust Co., 114 bls.; Banca Commerciale Italiana Trust Co., 74 bls.; Baring Bros. & Co., 229 bls.; American Express Co., 35 bls.; T. D. Downing & Co., 57 bls.; R. F. Downing & Co., 35 bls.; Brown Bros. & Co., 224 bls.; Milton Snedeker Corp., 258 bls.; C. R. Spence & Co., 26 bls.; Van Oppen & Co., 114 bls.; Order, 197 bls.

Paper

Importations of paper into the United States in September last were slightly less in point of value than in the preceding month, but were well above the imports in the corresponding month last year, according to official statistics issued by the U. S. Department of Commerce. The September imports reached a value of $13,352,579, contrasted with $13,985,751, in August this year, and $11,888,659 in September last year. During the first nine months of the current year paper imports were valued at $118,796,313, against $113,406,667 in the similar period of 1928. The bulk of these imports was of course newsprint, imports of which were valued at $104,-748,669 in the nine-month period this year, compared with $100,813,424 a year ago.

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See pages 372 and 373 in the 1929 Paper and Pulp Mill Catalogue

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Paper imports in November, gauged by the receipts through the port of New York, were up to an average. While official statistics are not yet available, following are the arrivals at the port of New York last month, these data being taken from manifests of vessels reaching that port during November:

Printing—E. Dietzgen & Co., 153 cs. from Rotterdam; Lips & Puttmann, 10 cs. from Havre; International Forwarding Co., 58 cs. from Antwerp and 11 cs. Rotterdam; Dingelstedt & Co., 9 cs. from Bremen; P. C. Zuhlke, 10 cs. from Bremen; Perkins-Goodwin Co., 861 reels from Hamburg; Journal of Commerce, 163 reels from Helsingfors, 76 reels Kotka and 73 reels Gothenburg; H. Reeve Angel & Co., 49 bls. and 7 reels from Gothenburg; Stora Kepparberg Corp., 133 reels from Gothenburg; Oxford University Press, 5 cs. from Liverpool; Walker, Goulard, Plehn Co., 121 bls. from Kotka, 164 cs. Bremen and 10 bls. Rotterdam; A. S. Zabriskie, 66 reels from Bremen; Vernon Bros. Co., 52 cs. from Glasgow; Hudson Trading Co., 303 rolls from Sundsvall; Keuffel & Esser Co., 115 rolls from Hamburg; Martin & Bechtold, 23 cs. from Bremen; Public National Bank, 7 cs. from Marseilles; Order, 1,604 reels and 121 cs. from Bremen, 30 cs. Rotterdam, 620 reels Kotka and 106 bls. Hamburg.

Wrapping—Wilkinson Bros. & Co., 18 bls. from Hamburg and 8 rolls Gothenburg; Thomas Barrett & Son, 11 bls. from Gothenburg; F. L. Kraemer & Co., 290 bls. from Gothenburg; J. P. Heffernan Paper Co., 18 bls. from Gothenburg, 200 bls. Antwerp and 145 bls. Glasgow; Standard Products Corp., 11 cs. and 8 rolls from Antwerp, 81 rolls London and 14 cs. Southampton; Crepe-Kraft Co., 199 reels from Gothenburg; Gilbert Paper Co., 69 bls. and 48 reels from Gothenburg; Blauvelt-Wiley Paper Mfg. Co., 292 reels from Gothenburg; Arkell Safety Bag Co., 442 reels from Gothenburg; Borregaard Co., 83 bls. and 7 reels from Gothenburg; Manhattan Paper Co., 23 bls. from Gothenburg; Union Paper & Twine Co., 47 reels from Gothenburg; M. M. Cohen, 12 reels from Gothenburg and 63 bls. Bremen; Sylvania Industrial Corp., 70 cs. from Antwerp; International Acceptance Bank, 27 bls. from Oslo; Order, 6 bls. from Rotterdam, 68 bls. Bremen and 22 cs. Southampton.

Cigarette—Standard Products Corp., 410 cs. from Havre and 116 cs. Southampton; Southern Pacific Co., 3 cs. from Havre; American Tobacco Co., 1,500 cs. from Bordeaux; Ligget & Meyers Tobacco Co., 13 cs. from Havre and 50 cs. Liverpool; P. J. Schweitzer, Inc., 22 cs. from Havre; DeMauduit Paper Corp., 688 cs. from St. Nazaire and 296 cs. Havre; International Souvenir Importing Co., 33 cs. from St. Nazaire; Gluckman, Stranch & Co., 2 cs. from Bordeaux; P. Lorillard Co., 100 cs. from Marseilles; British-American Tobacco Co., 11 cs. from Southampton.

Writing—Guibont Freres & Co., 17 cs. from Southampton and 16 cs. Havre; Kadri Bros., 8 cs. from Havre; Distinctive Writing Paper Co., 4 cs. from Havre and 7 cs. Southampton; Stern Bros., 3 cs. from Southampton; B. Altman & Co., 5 cs. from Havre and 2 cs. Southampton; Acme Fast Freight Service, 4 cs. from Havre; C. Steiner, 18 cs. from Bremen.

Filter—H. Reeve Angel & Co., 42 cs. from London and 83 bls. Southampton; J. Manheimer, 168 bls. from Southampton; E. Fougera & Co., 60 cs. from Southampton; A. Gusner, 100 bls. from Rotterdam.

Tissue—G. W. Sheldon & Co., 3 cs. from London; Schenkers, Inc., 208 cs. from Hamburg; F. B. Vandegrift & Co., 25 cs. from Liverpool; Parsons & Whittemore, 54 cs. from Liverpool; F. C. Strype, 17 cs. from Genoa and 61 cs. Helsingfors; G. A. Vedovi & Co., 37 cs. from Genoa; W. J. Byrnes & Co., 8 cs. from Southampton; S. L. Stern, 2 cs. from Hamburg.

Drawing—Globe Shipping Co., 9 cs. from Bremen; Keuffel & Esser Co., 15 cs. from Rotterdam, 22 cs. Hamburg and 5 cs. London.

Hanging—A. C. Dodman, Jr., Inc., 69 bls. from Liverpool, 17 cs. Southampton, 4 cs. Havre and 34 bls. Bremen; C. A. Haynes & Co., 66 bls. from London, 18 bls. Liverpool and 14 bls. Southampton; F. J. Emmerich & Co., 62 bls. from Hamburg, 29 bls. Liverpool and 5 bls. Southampton; Irving Trust Co., 19 cs. from Hamburg; G. J. Hunken & Co., 25 bls. from Bremen; F. A. Binder, 3 bls. from Bremen; R. F. Downing & Co., 7 cs. from Southampton and 48 bls. London; Phoenix Shipping Co., 30 bls. from Bremen; Prager Co., 80 bls. from Antwerp; W. H. S. Lloyd & Co., 7 bls. from London; F. & R. Trading Co., 230 reels from Bremen; International Mercantile Marine Co., 30 bls. from Southampton; Order, 27 bls. from London and 5 bls. Hamburg.

Photo—J. H. Schroeder Banking Corp., 32 cs. from Bremen; P. C. Zuhlke, 45 cs. from Bremen; Globe Shipping Co., 429 cs. from Bremen; Taun, Hummel & Schnall, 180 cs. from Bremen; J. J. Gavin & Co., 7 cs. from Southampton; Gevaert Co. of America, 150 cs. from Antwerp; J. J. Murphy Paper Co., 2 cs. from London.

Board—Robert Wilson Paper Corp., 40 reels from Rotterdam; Schleinder Press, 393 pkgs. from Rotterdam; Standard Trunk Mfg. Co., 18 bls. from Gothenburg; Fiber Products Mfg. Co., 16 bls. from Gothenburg; Chatam & Phenix National Bank, 43 bls. from Gothenburg; Lagerloef Trading Co., 85 reels and 187 bls. from Hamburg and 89 bls. Bremen.

Miscellaneous— S. Gilbert, 68 cs. from Bremen; Japan Paper Co., 7 cs. from Rotterdam, 34 cs. Southampton, 27 cs. Havre and 2 bls. Gothenburg; D. C. Andrews & Co., 12 cs. from Rotterdam, 2 cs. Liverpool and 3 cs. Southampton; Whiting-Patterson Co., 15 cs. from Rotterdam and 11 cs. Southampton; Tice & Lynch, 4 cs. from Rotterdam; W. L. Haas, 26 cs. from Rotterdam; F. Henjes, Jr., 2 cs. from Harve and 61 cs. Gothenburg; W. L. Newberry, 4 cs. from Havre; Keller-Dorian Paper Co., 192 cs. from Havre; Thomas & Pierson, 40 cs. from Southampton; Central Hanover Bank & Trust Co., 315 cs. from Hamburg; Brown Bros. & Co., 12 cs. from Hamburg; P. H. Petry & Co., 7 cs. from Hamburg, 7 cs. Havre, 6 cs. Rotterdam and 3 cs. Bremen; Pacific National Bank, 10 cs. from Hamburg; Bendix Paper Co., 6 cs. from Hamburg; W. A. Foster, 2 cs. from London, 3 cs. Southampton and 53 cs. Glasgow; Hurley-Johnson Corp., 62 bls. from Liverpool; Pelican Works-Gunther Wagner, 21 cs. from Bremen; Quality Art Novelty Co., 5 cs. from Hamburg; J. Beckhardt & Co., 22 cs. from Bremen; Causon & Montgolfer, 15 cs. from Havre; C. A. Redden, 4 cs. from Havre; G. W. Sheldon & Co., 4 cs. from Havre, 6 cs. Southampton and 4 cs. London; Meadows, Wye & Co., 21 cs. from Rotterdam and 6 cs. Liverpool; Heemsoth & Basse, 25 bls. from Rotterdam; E. M. Sergeant Co., 6 cs. from Gothenburg; J. E. Anderson, 4 cs. from Gothenburg; B. F. Drakenfeld & Co., 39 cs. from Liverpool;

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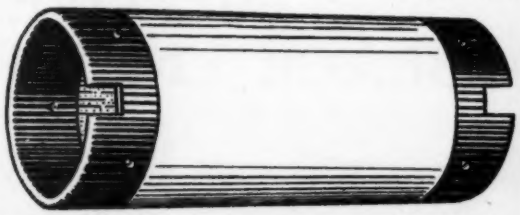

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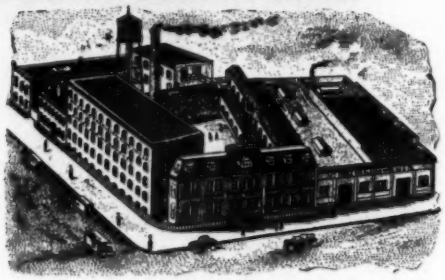

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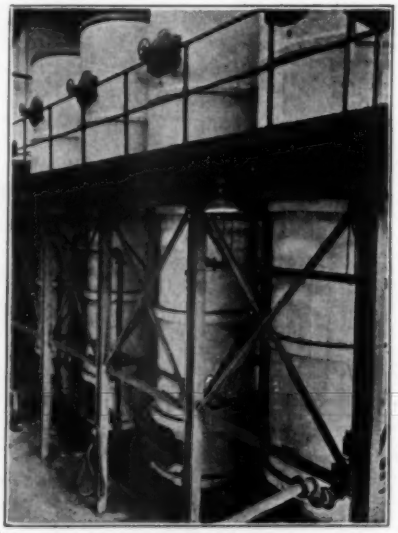

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Oakite Products, Inc. Hold "Engineers' Frolic"

Oakite Products, Inc., whose products find so many uses in paper mills, from cleaning wires and felts to lubricating calender grinders, assemble their service men once a year from all parts of the United States for a conference at the head office in New York. As a windup to discussions of business policies and similar weighty considerations, there is a social meeting or frolic in connection with a dinner party at a leading hotel and to this friends of the organization are invited. In this way the Eastern Manager of THE PAPER INDUSTRY received an invitation to attend the "Twenty-first Annual Engineers' Frolic", held on the Pennsylvania Hotel roof, Friday evening, November 22. It was stated on the cards that the "Oakite Overland Special leaves the Round House on the Pennsylvania Hotel roof at 7 p. m. sharp."

The idea of an "Engineers' Frolic" was carried out on all announcements, tickets and menu cards. The card of admission was a clever imitation of a railroad ticket, giving train time, dinner seat, etc. On reaching the rendezvous on the roof of the hotel, the members of the Oakite organization and their guests were received by attendants in the uniform of train conductors who punched their tickets and admitted them to the "Oakite Overland Special", where they were met by Pennsylvania R. R. Red Caps who ushered them to their seats in the cars, that is, their respective tables. All during the seating of the guests, Western Union messengers were running around taking telegrams. While this was going on, the Oakite Orchestra, which is heard over Station WABC every Friday evening, entertained with musical selections. As place cards the guests found a "Train Schedule for 'Eats'", which was a curiosity in its way, being a combined menu and program of events that displayed great originality.

The serviettes or napkins at each cover consisted of a wad of engineer's cotton waste. Little red and green lanterns were used as table decorations, and every diner was supplied with a regulation engineer's cap.

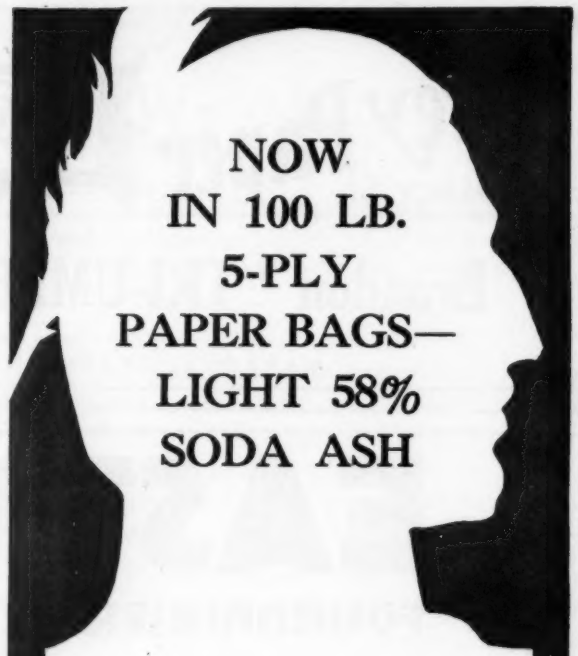
Toastmaster Frank A. Conolly engineered the evening very cleverly, telling numerous funny stories and keeping the hilarity of the gathering at a high pitch. President D. C. Ball was one of the speakers and tried hard to explain to the guests the how, why and wherefore of his bright red necktie. Following the "Eats", professional entertainers appeared, among them being several who are regularly heard on the air over WABC, as Rubber Faced Joe, and another artist who was clever enough to draw music out of kitchen utensils like roasters and kettles. The evening was a thoroughly enjoyable one and upwards of 250 were present.

Du Pont Introduces New Color

The Dyestuffs Department of E. I. du Pont de Nemous & Company is placing on the market its new color, Du Pont Scarlet Y for Lakes, which is yellower in shade than their previous brand, Du Pont Scarlet 2R for Lakes, but similar in properties and strength.

This dyestuff is extensively used by the lake trade as a barium lake, for coated paper, printing ink and wall paper and also finds some use in the manufacture of linoleum goods.

Du Pont Scarlet Y for Lakes is soluble in water and is



NOW IN 100 LB. 5-PLY PAPER BAGS— LIGHT 58% SODA ASH

ANOTHER forward step in a program of constant improvement—Wyandotte Soda Ash now comes in the famous Taggart-Bates multi-wall sewed-end paper bags. Five sturdy paper wrappings end the old dust nuisance. No Soda Ash sifts out—it can't.

The new 100 lb. size handled easier, quicker. You save time, labor. Guaranteed dust-proof, leak-proof, break-proof, moisture-proof.

This method of packing Light Soda Ash was originated by the Michigan Alkali Company.

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converted into lakes by dissolving to a clear solution and precipitating with barium chloride or basic lead acetate. The lakes possess good brilliancy and reduce to bright shades with zinc oxide.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 41568—Containers, fiber board, for holding 36 one-pound cartons. Cardiff, Wales. Purchase desired.

No. 41570—Envelopes, for correspondence. Mukden, China. Purchase desired.

No. 41659—Machinery for making paper ice cream and milk containers. Auckland, New Zealand. Agency desired.

No. 41572—Milk bottle cap manufacturing and printing machines. Tampico, Mexico. Agency desired.

No. 41569—Newspapers, overissued. Tsingtau, China. Agency desired.

No. 41567—Newsprint paper. Colombo, Ceylon. Purchase desired.

No. 41572—Paper bag manufacturing machine, small. Tampico, Mexico. Purchase desired.

No. 41659—Printing and newsprint paper. Auckland, New Zealand. Agency desired.

No. 41654—Paper wrappers for grapefruit, plain and printed. Toronto, Canada. Purchase desired.

No. 41622—Casein. Rouen, France. Agency desired.

No. 41690—Bond paper, high grade. Bombay, India. Agency desired.

No. 41760—Glassine paper. Milan, Italy. Agency and purchase desired.

No. 41774—Kraft wrapping paper and envelopes. Bombay, India. Agency desired.

No. 41745—Newspapers, overissued. Bombay, India. Agency and purchase desired.

No. 41774—Newspapers, overissued. Bombay, India. Agency desired.

No. 41733—Newsprint paper, standard grade. Bogota, Colombia. Agency desired.

No. 41745—Paper. Bombay, India. Purchase and agency desired.

No. 41765—Vulcanized fiber, thin. London, England. Purchase desired.

No. 41771—Wall board. Wellington, New Zealand. Agency and purchase desired.

No. 41689—Writing paper, office and personal. Guatemala City, Guatemala. Agency desired.

No. 41693—Writing paper, and envelopes; boxed, cheap. Manila, P. I. Agency desired.

No. 41825—Wool felts for paper machines. Oslo, Norway. Agency desired.

No. 41819—Fish and jute papers, for making sand and emery papers. Hamburg, Germany. Agency desired.

No. 41864—Glassine bread bags, printed on one side. Bogota, Colombia. Agency and purchase desired.

No. 41874—Kraft paper for manufacture of heavy bags, and machines for making paper bags. Mexico City, Mexico. Purchase desired.

No. 41902—Paper spoons and plates. Johannesburg, South Africa. Agency desired.

No. 41863—Wall and insulating board. Copenhagen, Denmark. Agency and purchase desired.

No. 42126—Paper box manufacturing machinery. Belleville, Canada. Purchase desired.

No. 42129—Cash register paper, wood pulp wadding, and cellulose paper in sheets 36 by 108 inches. Sydney, Australia. Purchase desired.

No. 42132—Printing and writing papers. Lourenco Marques, Portuguese East Africa. Purchase desired.

No. 42131—Paper spoons. Rotterdam, Netherlands. Purchase desired.

Starch—

A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand for beater-sizing increases strength of sheet and gives improved finish.

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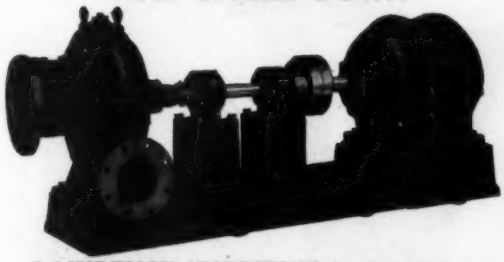
PUMPS

THAT KEEP PRODUCTION UP
AND UPKEEP DOWN



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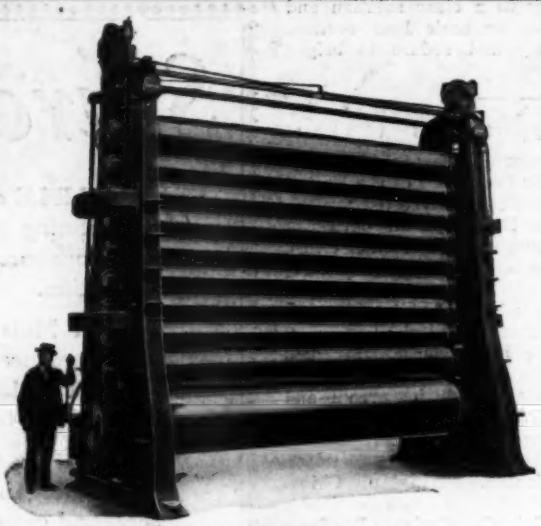

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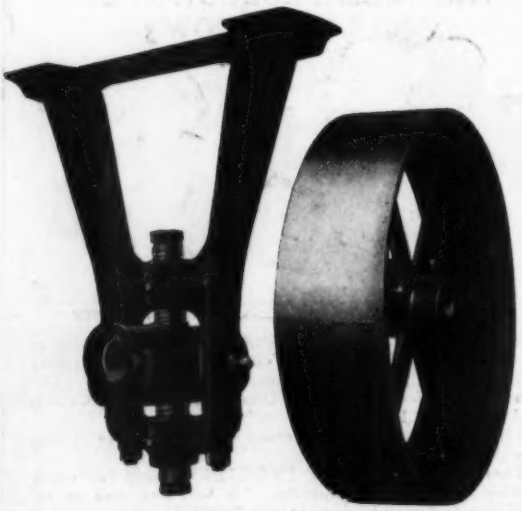

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